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official organ of the
ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

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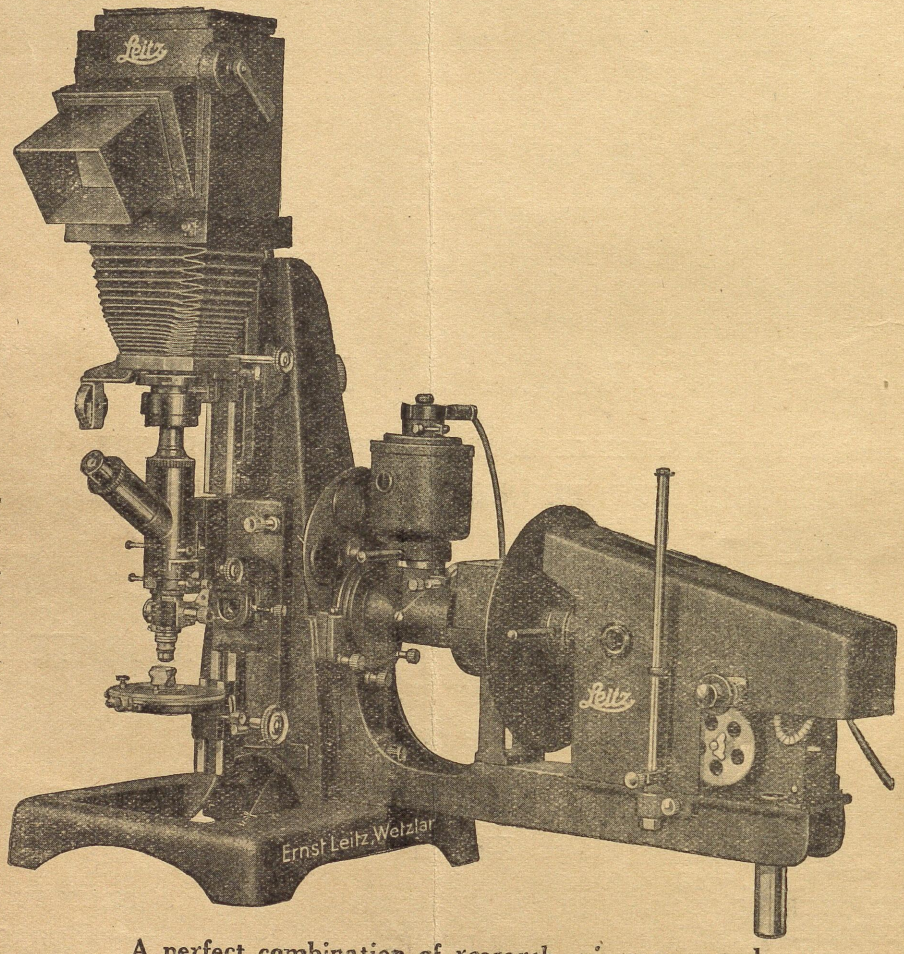

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In This Issue

Retrospect and Prospect ... 1

Nobel Prize Winner (1949) for Science and Peace ... 4

Science and Peace
B. C. Guha ... 5

Trade Unions for Scientists
J. G. Crowther ... 7

Freedom for Science ; An Appeal For Action
Julian Huxly ... 12

Freedom of Science and the Universal Declaration of Human Rights
Bart J. Bok ... 15

World Federation of Scientific Workers ... 27

Trade Unionism of Scientific Workers
V. R. Joshi ... 32

A British Engineer Looks At Czechoslovak Industry ... 37

How to Kill an Organization ... 39

Letters to the Editor ... 40

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Objects of the Association :

To encourage the most effective use of science and scientific methods for the benefit of the community as a whole
To protect and improve the status and economic conditions of scientific workers

Membership of the Association :

Is open to natural and social scientists of all grades, and their associates

Subscription :

Ordinary Members : 5/- p. a. Associate Members : 3/- p. a.

Enrolment fee :

Ordinary Members : 5/- ; Associate Members : 3/- ;

Activities :

The Association and its constituent Branches and Units represent and take up, where necessary, the cases of individuals or groups of scientific workers with their employers
and its other activities include :
Exhibitions of scientific films
Talks and lectures by scientists from all fields
Discussions of important problems affecting the scientific workers and the society.

VIJNAN-KARMEE

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1. **Popular articles on scientific and technological subjects and on the social and economic problems of scientific workers are invited for publication in Vijnan Karmee. Vijnan Karmee offer full scope for discussion of various important issues facing the scientific workers and the society.**
2. **Signed articles and letters to the Editor from the scientific public in general and members of the Association in particular will be published. Assumed names may be accepted for the letters but the authors must give their full names and addresses. The editors as well as the Association are not responsible for the views expressed in the communications.**
3. **The editors reserve the right of accepting or rejecting a communication for publication as well as to make minor alterations, if necessary, before publishing the articles, letters etc. Articles, letters etc. not selected for publication can be returned only if postage stamps are enclosed.**
4. **Communications should be addressed to the General Secretary, Association of Scientific Workers of India, University Buildings, Delhi 2.**

VIJNAN-KARMEE

VOL. II January, 1950 No. 1

RETROSPECT AND PROSPECT

IN the longer view, years and decades may be insignificant in relation to the life of a nation or community. But for us, the year 1949 was of considerable importance as a year after the recent transference of political power. During the year, in every corner of India, in every sphere of our community life, from the governmental level to that of the common man, people discussed what we should have, what we should do and how we should plan to effect our progress—economic and social. The most important discussion was that in the Constituent Assembly which has recently finalised the Constitution of the Indian Republic. High hopes have been raised in it; there are criticisms against it. We do not prefer to review our Constitution of Free India here. We would only say that the scientific workers of India will feel sorry to see that science could not get its due place in the Constitution of Free India. Scientific Research and Technological Development are not in the Concurrent List. They deserved greater attention from our Constitution-makers, as they form the very basis for the future progress of India.

An important event of the year was enactment of the Atomic Energy Act by the Indian Parliament. Recently it was reported that activities in atomic research had been set afoot in various centres in India and steps have been taken towards utilization of mineral resources, rich in radio-active elements, available in the country. Earlier an agreement had been effected by the Government of India with a French firm for exploitation of Travancore monazite sand.

The establishment of the Defence Science Organisation of the Government of India is another notable event in the scientific field in India during the year. A conference of Civil and Military scientists was held in the earlier part of the year under this organisation. This conference recommended the establishment of well-equipped laboratories for operational research. Here we would like to mention that it was the experience of scientists and experts in the advanced countries during the last war that operational research and development of defence requirements presupposed the simultaneous

development of industries and the technique of production on all fronts—from metallurgy to plastics, from food to medicine. It is therefore necessary that our scheme of operational research should be closely co-ordinated with our plans for industrial development on modern lines.

High hopes were raised in the minds of the scientific workers of India at the establishment of the Department of Scientific Research under the direct care of our Prime Minister, Pandit Jawaharlal Nehru and also at the setting up of a Scientific Man-Power Committee along with it. These are indeed steps in the right direction. Everybody hoped that every bit of scientific effort would be thus mobilized and coordinated, every potential resource would be harnessed for production and more production. But we are sorry to see that nothing substantial has yet happened over which one could be jubilant. The other day, the Government spokesman in an answer to a question in Parliament said that the recommendations of the Scientific Man-Power Committee were with the Government, but it might not be possible to give effect to those recommendations because of the adverse financial circumstances. We agree with and repeat the words reported to have been spoken by the Scientific Research Secretary of the Government of India, that mere paper planning would not do—execution of the plans is necessary with an effective coordination, and we urge upon the relevant authorities to expedite this coordination and execution.

The Council of Scientific and Industrial Research, in the year under review, acquired two "palaces"—one in Mysore and the other in Lucknow—for the Central Food Technological Laboratory and the Central Drug Research Institute. It is a good sign that large buildings are made available for the promotion of research. The other National Laboratories have also made steady progress. Four of these Laboratoris are nearing completion and seven others are at different stages of construction. We do hope that these Laboratories will start functioning in the new year and every effort will be made to equip them suitably as early as possible.

In this connection, we would like to direct attention to the position of our Universities. The Universities which are the nerve centres of the Nation are neither strong nor well cared for. Unless the University Laboratories and Libraries are well-equipped, unless our teachers and researchers are assured of their freedom from want, production of talented nation-builders will continue to suffer under a handicap. We would urge upon the authorities to give due consideration to the Radhakrishnan Report without any further loss of time and implement the considered recommendations of the Universities Commission.

High hopes have been raised in the minds of the people in regard to the different Development Projects - Damodar Valley, Bhakra, Hirakud, Mayurakshmi, Kosi, Tungabhadra and regarding the factories for the large scale production of fertilisers, essential drugs, automobiles locomotives etc., and we still hope that work on these productive projects will not be slowed down.

During 1949, we had the usual food shortage and famine in some parts of the country. Food production and the use of substitute foods were slogans number one and two. But we hope that far greater efforts than have hither-to been made will be directed towards the large-scale reclamation of eroded soil, bringing under machanised cultivation of vast tracts of arable land, production and utilization of improved strains of seeds etc.,—the means which are established and advocated as the scientific methods for improvement in food production. What has been achieved in other countries can also be achieved in India, if the will is there.

The most depressing event of the year was the financial set-back in the country. When we needed more production of wealth in the country, more consumer goods for the people, retrenchment was effected in industry as well as in the Government; when the high cost of living index is still soaring, cuts and compulsory savings have been introduced.

We are told - there is lack of capital - capital is shy; there is lack of capital goods - dollar earning is necessary and thus the rupee has to be devalued; there is lack of trained personnel - hence the necessity of the Overseas Scholarshisp Scheme costing nearly two crores of rupees. On the other hand we hear - money is in hiding; we see the Indian market still flooded with foreign consumer goods; we see that trained personnel, post-graduate degree holders, State scholars who have recently returned are still unemployed and are moving about for suitable jobs. Industry says it is unable to absorb the scientific workers trained abroad because of their unsuitability. It is a riddle which can and must be solved for the progress and welfare of the Indian nation. It can be solved if the Government and the people are determined to face the issues scientifically and take steps in the interest of the entire community ignoring sectional interests. Planning of national economy and its execution must be on scientific lines and in the interest of the broad masses. Otherwise there is no future for India.

We warmly greet our fellow scientific workers throughout the world and wish them success in their ceaseless efforts to lead humanity to a better future.

NOBEL PRIZE WINNERS (1949) FOR SCIENCE AND PEACE

Physics.

Professor Hideki Yukawa, aged 42 years, has been awarded the Nobel Prize for his theoretical researches on nuclear physics. He is the first Japanese to receive the Nobel Prize. Professor Yukawa is the Professor of Physics at Kyota University, Japan and is at present the visiting Professor of Physics at Columbia University, U.S.A. He went to the United States in 1948 the first Japanese scientist to be allowed into that country after the 2nd World War and he went to Princeton University to study higher nuclear physics for a year, as a guest of Dr. J. Robert Oppenheimer, Director of the Institute for Advance Study.

As early as 1635, Dr. Yukawa introduced a new field of force responsible for short range interaction of the neutron with the protone but different from the so called neutrono-electron field. Its most important consequence was that the field should be accompanied by new types of quanta obeying Bose statistics and thus he predicted the existence of the elementary particles, the mesons. The subsequent discovery of mesons in cosmic radiation has confirmed that these mesons are identical with the quanta associated with the neuclear field. Dr. Yukawa's other outstanding contributions include those on Dirac's generalised wave equations, slow neutrons, theory of β-disintegration, γ encounter, scattering of mesons, etc.

While asked by a reporter of the *Times*, (America) how he had conceived the meson theory Prof. Yukawa said:

"Well, it is very curious. When one works in daytime, it is easy to do your regular work. You have your desk, your paper convenient. But it is hard in daytime to get something that is completely different from conventional notions. So I used to work hard all day and get tired and nervous. Then I could not sleep at night. Sometimes at night I thought of very interesting things. Almost always, in the morning, these things turned out to be untrue. But once in a great while one of them was true and unusual. This was the way, at night, that I thought of the meson theory."

Chemistry.

Professor William Francis Giauque, aged 54 years, has been awarded the Nobel Prize in chemistry for his researches on chemical thermodynamics. Professor Giauque is a Professor of Chemistry in the University of California, Berkeley. He was awarded Chandler Medal of Columbia University in 1936 for his invention and first application of adiabatic demagnetisation method of producing temperatures below 1 absolute; and for his discovery with H. L. Johnson of oxygen isotopes seventeen and eighteen by means of absorption of sun light in Earth atmosphere. He was awarded Elliot Cresson Medal of Franklin Institute in 1937.

Physiology.

Dr. Walter Rudolf Hess, Swiss Physiologist, aged 68 years,

Dr. Antonio Egas Moniz, Portuguese Physiologist aged 75 years.

Dr. Walter Rudolf Hess, is the Director of the Physiological Institute at Zurich Universiy. Dr. Hess is a brain and eye specialist and has studied the reactions of animals to electric shock in relation to the circulatory and nervous system and has been able to determine how parts of the brain control organs of the body. By applying electrodes to different parts of cat's brain and by stimulating, he was able to reproduce specific normal responses to external stimulii in the animal.

Dr. Moniz is a Neurologist who introduced leucotomy and he was the first medical scientist to cure mental disorder by surgical opera-

tion, in 1935. Dr. Moniz is a former Portuguese Minister of Foreign Affairs and a Minister at Madrid.

Peace:

Lord Boyd-Orr, British Physiologist, aged 69 years; Lord Boyd Orr is the former Director-General of the United Nations, Food and Agricultural Organisation. He served with the Royal Medical Corps, during the world war I and was Director of Rewett Research Institute on Animal Nutrition upto 1945. He is a member of many Committees of Nutrition, Agriculture, Animal Health, and of other scientific committees. He is the Joint Editor of "Nutrition Abstracts and Reviews",

Lord Boyd-Orr while receiving the prize in the Oslo University Hall said : "I regard this as the greatest honour any man can receive, but I cannot take this award for myself alone. I hope that the many peace organisations with which I am connected will regard me as their representative and will be encouraged by the approval given with this award to continue their great work for the promotion of peace."

Science and Peace



B. C. GUHA

The greatest problem which faces humanity today is the problem of the maintenance of peace. It is indeed disquieting that although we have had two wars in one generation there is already the talk of another war. Atom bombs continue to be stockpiled; ceaseless efforts are being made to perfect weapons of mass destruction. Increasingly larger proportions of the revenues of governments, which should have gone for raising the standard of living and culture, are being diverted to the development of better methods of killing. Humanity has got caught up in a vicious cycle of wars and that cycle has not yet been cut.

It does not require much imagination to see what havoc can be wrought by another war, before the nations have even recovered from the effects of the last. Untold men and women are trying to build a new out of the ashes of the old, to reconstruct amid the ruins which lie about them. Underdeveloped countries like India have not yet reached even a minimum standard of living and millions upon millions are living in chronic semi-starvation and without proper clothes and shelters. Another world war would mean disaster all around.

While all mankind must struggle hard to root out this nightmare, scientific workers have a special responsibility in this regard. Science is being constantly utilised for increasing the efficiency of lethal weapons and for inventing

new ones. For this of course science itself is not to blame because science is neutral and it is the responsibility of those who utilise it whether they do so for good or for evil. Nonetheless scientific workers have a very deep social responsibility to see that science is not mis-used.

Scientific workers have of course to earn their living like other members of the community and they have to do work that they are told to do by their employers. It is not so easy for them either to do things as they wish to or to refuse to do things which they do not like to. Nevertheless if all scientific workers throughout the world could build up a solid fraternity and a code of honour, they could atleast strengthen the forces which make for world co-operation and resist the tendency to world conflict. Public opinion in every country is naturally against wars but that public opinion has to be reinforced by special efforts of scientific workers in every country. They understand more than any other sector of the community the great dangers to which modern developments in science and technology in relation to warfare have exposed mankind. They can speak with a concerted voice and show the people how these very developments, if employed planfully for the betterment of mankind, would have raised their standard of living to undreamt-of heights in a relatively brief space of time.

What the future holds for us nobody can tell. There are forces which are leading us to a conflict. Let us develop forces which may lead us away from conflict and help to usher in a world war which does not contain those stresses and strains which are the root causes of wars. The struggle for the preservation of peace in the present anxious world and the struggle for bringing about a social order which eliminates for all time national animosities and sectional rivalries must go on *pari passu*. A large section of humanity does not yet know what science could do for it, if only science was given a chance in a classless society. It is the task of scientific workers throughout the world to take a lead in this matter and campaign ceaselessly for peace and progress.

TRADE UNIONS FOR SCIENTISTS

By

J. G. GROWTHER,

(*Secretary General, World Federation of Scientific Workers*)

Scientists have existed for more than two thousand years, but they have only recently begun to organise, first in learned and technical societies, and latterly in trade unions.

The reasons for this are social and historical. Until the last hundred years, scientists were few in number, nearly all of them were working individually, in universities, or as gentlemen of leisure, or retainers of kings or noblemen. Long centuries passed before the technicians of industry received the dignity of the title of scientist.

Until the seventeenth century, nearly all scientists worked in isolation. Then they formed learned societies to keep in touch with each other. Some of these still exist, and very many more have been founded since, so that the worker in every branch has his own learned or technical society. These societies form an essential part of modern science, and deserve all the high prestige that many of them possess.

The rapid growth of science, in its different branches, and in the number of scientists practicing in them has, however, changed science from an activity of individuals into one of groups and professions. Now a days we have university science departments which may have more than one hundred research workers, with scientific staff equally large. We have government laboratories and industrial laboratories which are even larger, and have still bigger scientific staffs.

A laboratory consisting of a single room in some rich nobelman's house, with a single scientist and one or two servants working in it, is an altogether different kind of institution to a great building costing one hundred thousand pounds, with hundreds of scientists working in it. In the single room laboratory of earlier days, the salary of the scientist and his working conditions were a matter of negotiation with his wealthy employer. He was probably given a bedroom in the great man's house, and perhaps a place at one of the lower tables in his dining room.

The situation in the big modern laboratory is utterly different. The hundreds of scientists have varying degrees of qualifications, talent and experience. They would not be able to work satisfactorily unless they were paid according to a complicated salary system. By virtue of their number, scientists have inevitably become members of a profession, which is gradually working out a suitable system of working conditions and salaries. As science is different from other activities, so the conditions for scientists have their special features. Hence scientists need their own professional organisations to work out, and secure, the special conditions they need. For instance, a scientist requires a special flexibility in conducting his researches. He cannot switch his brain on and off like a machine. He needs special opportunities to attend meetings of his appropriate learned society, and to discuss scientific problems with others working in the same field.

If he does not have these opportunities, he tends to become stale. Thus he generally

requires more opportunities for travel and meeting colleagues than is usual among office workers.

You may say you agree with these arguments, but you do not see why the scientist should have a trade union; is not professional institute, which upholds the standards of qualifications and lays down conditions of work sufficient?

The answer is that such professional institutes are very neeessary and useful, but they are not sufficient. They tend to identify the scientist with government or management, rather than with the majority of ordinary people. This was intelligible when scientists were few, and frequently were the pensioners or advisers of their employers. Today, the situation is different. Scientists do not aspire to identify themselves with the ruling classes. They wish to regard themselves as a section of the ordinary people, of the workers as a whole, who create by their labours the means of life and civilisation. In any case, even if they worked to identify themselves with management, they could not, because there are far too many of them. Only a few of the thousands of scientists now in existence can be at the top. The majority of scientists today, and even more so in the future, will invevitably be members of the rank-and-file. Now the only way in which the rank-and-file workers in any field can secure their rights is by trade union organisations, which enables them to take social and political action in addition to explanation and persuasion. A few many gifted and egoistic scientists may be able to secure very good conditions for themselves by mere cleverness, but the ordinary rank-and-file scientific workers cannot. They must organize in a trade union. If they do not, they will remain poor and exploited, unable owing to poverty to do their work properly, look after their family and perform their social duties.

In the new socialist countries, headed by the Soviet Union, all of these lessons have been learned years ago, and the organisation of scientists in trade unions is complete. The Soviet Trade Union of Higher Education and Science has 700,000 members. Of these, about 420,000 are high school students and about 100,000 are scientists and scholars with university qualifications or their equivalent. This trade union does everything for the professional interest of the scientist members. It looks into the competence of professors as teachers, it advises the student on his course of study. It sees that the labour laws concerning salaries and conditions of work are observed. It assists members to improve their technical qualifications.

It organizes holiday camps every summer for no less than 400,000 students, in the Caucasus and elsewhere. In these camps the students benefiting from fresh air and exercise and good food often gain as much as six to eight pounds weight in forty days.

The Trade Union has sixteen sanatoria, two of which are in Siberia.

Besides watching the quality of teaching and health, the Union inspects buildings and equipment, and reports to the educational authorities on deficiencies.

In the Soviet Union there are large numbers of students of mature years who are pursuing the new opportunities for education. One of these is a woman collective farmer, Oubaidulayeva, who is in the second year course of the Agricultural Institute at Taskhient. She is an Uzbek collective farmer who is more than fifty years old, who succeeded in producing a sugar beet of the outstanding size and sugar content. She received the high honour of Hero of Socialist Labour for this feat, and has now become a student. She is enrolled in the Trade Union for Higher Education and Science and has been elected a member of its Central Committee.

The Trade Union arranges that outstanding workers lecture on their methods. One of these

is Rossiyski, a mechanic working in the Calibre Scientific Instrument Factory in Moscow, who received a Stalin prize for his achievement.

The conditions of everybody in an institute of science or learning are looked after by the Trade Union, from the most eminent Academician to the humblest charwoman and cleaner.

Such is the conception of complete trade union organization as practised in the Soviet Union. In countries which are not so advanced socially, the organization of scientists is very much less complete and in many scarcely begun. It may be of use to say something of the organisation in Britain, which is still predominantly a capitalist country, but has made some progress in the organisation of scientists.

The National Union of Scientific Workers in Britain was formed in 1918, as a result of the deficiencies revealed by the war of 1914-18, both in the conditions of scientists, and of science. It was on a definite trade union basis and the first meeting of the Cambridge branch was held under the chairmanship of J. J. Thomson. The Union soon acquired a membership of 600, but there-after its growth was slow and variable. In these early years it had some success by lobbying. For instance, it secured an increase in the Government Grant to the Universities, and an improvement in the conditions of scientific workers in the Colonial Service. The membership at first consisted largely of academic and government scientists. Many of these were afraid of the original trade union basis.

The reactionary legislation against trade unions after the great General Strike of 1926 increased the fears of these scientists, who desired the trade union aspects of the organisation to be dropped. Accordingly, the National Union was re-organized as a non-trade union Association of Scientific Workers. This did not bring much improvement in membership, which fell to a very low figure in the despression of 1932. After that, a revival began, owing to the improvement of the economic situation and the rise of the Nazis. Refugee scientists began to appear in Britain and the more far-seeing scientists began to take more interest in social and political affairs, and their bearing on science and scientists.

A new generation of scientific thinkers arose, the outstanding figure of which was Professor J. D. Bernal. Under his inspiration, and that of others, the programme of the Association of Scientific Workers expanded and deepened, and the membership slowly increased. By 1939 it had risen to the modest figure of 1,319.

The first world war led to the foundation of the Association of Scientific Workers; the second world war has also led to remarkable developments.

By 1940, the membership had risen to 2,500, and it was decided to register the Association again as a trade union, thus returning after more than ten years, to the original plan. The Association became affiliated to the Trades Union Congress in 1942. From this period the membership increased very rapidly and by 1948 it was 16,000.

The rapid increase in membership was due to the success of the Association in securing better salaries and conditions, especially for the lower-paid workers. The percentage of highly qualified scientists in the membership has necessarily gone down, as the number of these is now large and they are generally able to secure adequate posts because of their exceptional qualifications.

About half of the membership consists of scientists with University degrees or their equivalent, about half consists of technicians and laboratory assistants, and there is a small number of student members. Altogether, about half of the members are under the age of twenty-five, and the average age of its officers is only in the thirties. The Association is very much a young man's organization.

The Association has done a great deal to stimulate thought and action on the development

of science in Britain. It has organized many conferences for discussion, and issued many pamphlets and books on this subject. Many of the leading ideas of the post war schemes for extension of Government Organization in science were first put forward by the Association of Scientific Workers, especially the conception of the magnitude of scientific research in a modern state.

The Association inspired the formation of the Parliamentary and Scientific Committee, which consists partly of members of Parliament and partly of the representatives of scientific organisations. This important body has greatly assisted the passage of progressive scientific means through Parliament, by getting the objects of the legislation thoroughly explained and understood beforehand.

The other main aspect of the Association's work is the working out of policy on working conditions, salary scales, payment during sickness, holiday arrangements, income tax allowances, etc.; and the handling of negotiations and disputes on these matters.

The Association has conducted hundreds of these negotiations and it has been calculated that in the year 1945-46, members of the Association benefited from them by a sum of between £50,000 and £100,000.

These negotiations included, for example, an application for salary increases for certain categories of scientific workers at the Imperial College of Science. Small increases were granted with a promise of review later.

Similar improvements were secured at University College, Cardiff, and at the Universities of Manchester and Oxford. Discussion with the Organon Company, Limited, of London, led to an offer by the Company of salary increases of from £50 to £150 a year, for members of the Association.

As a result of discussions jointly with another union, with Imperial Chemical industries, Ltd., the title of "assistant chemist" was altered to "assistant technical officer" and the salary grade raised from £300-£500 to £320-£575.

Five members of the Association left their posts on the staff of the Anglo-Iranian Oil Company at Abadan in Persia. The Association asked on their behalf for payment of salary in lieu of notice. The company made ex-gratia payments totalling £1,201 to four of the men.

On May 10th, 1946, thirty-one members of the staff of the Rotax aircraft equipment company were discharged as redundant, at the instance of the Chief Electrical Engineer. As a result of trade Union collaboration, all the workers in the factory came out and held a mass-meeting at the factory gates.

It presently appeared that, among other facts, one of the men was discharged not in fact for redundancy but for trade union activities on behalf of the Association. The representatives of the Association and the other unions concerned immediately called for the dismissal of the Chief Electrical Engineer of the Company, and in the course of a few days the Company acceded to this demand.

One sees how valuable it is to have an organisation which can assist the scientist, especially the young obscure man, who is in difficulties, or does not receive proper treatment.

Associations of Scientific Workers have grown up in many countries, according to the extension of science and the scientific profession.

The next step was to affiliate all of these together and this was done in 1946 with the foundation of the World Federation of Scientific Workers.

The object of the World Federation is to strengthen the bonds between scientists everywhere, and exchange experiences about their conditions, so that they can learn from each other and work out agreed policies in those questions which equally affect all scientists throughout the world. When all scientists everywhere begin to speak with one voice on these matters which especially affect them, the

proper influence of scientists in this modern scientific age will be very greatly increased.

Already we have been able to inform each other of our respective experiences and achievements, and so have been able to undertake useful actions which we should otherwise not have heard of, or throught of, for ourselves. It is the policy of the World Federation of Scientific Workers to collaborate with all the other workers of the world for strength arises only from unity. Scientists are too few and too weak to solve any great problems of the world merely by themselves. But as the friends and comrades of all the workers of mankind, who can explain the significance of science and secure the trust of the masses of the workers for it, they can have a great and essential influence for good, both for mankind as a whole and for science and themselves.

The World Federation of Scientific Workers was therefore proud to join with the World Federation of Trade Unions in an announcement from Paris on October 20th, 1949, in the names of Professor Joliot-Curie and J. G. Growther on one side, and Louis Saillant and and S. Rostovsky on the other, that the two Federations proposed to set up a mixed Working Committee to establish contractional relations between the two Federations to work together on those economic and social aims that they have in common.

So we march steadily forward, improving the conditions of science and scientists, so that their work shall bring the maximum benefit to all mankind, to science, to themselves.

FREEDOM FOR SCIENCE: AN APPEAL FOR ACTION

JULIAN HUXLEY

In the June 25 issue of NATURE, Mr. Huxley, distinguished British biologist and the former Director-General of UNESCO, discusses once again the problems arising from the attempt to establish an exclusive government-approved school of biology in the Soviet Union, a development which has been treated extensively in the May issue of the BULLETIN. Mr. Huxley concludes his article with an appeal for positive action on the part of scientists in Western democratic countries to halt the misunderstanding and perversion of science, not only by the Soviet Government, but, in less flagrant fashion, by the Western governments as well. We believe that individual scientists and scientists' societies in this country must seriously consider Mr. Huxley's ideas and hope that this presentation will help to initiate a discussion of his proposals.

HOW should man of science act in the face of the increasing concern of the State with science, and the consequent increasing pressure of the State on science?

Can they accept the existence of an official scientific policy? Can they accept the possibility that the majority of men of science shall be paid by the State and that the major cost of scientific work shall be borne on government funds? Can they accept official direction as to what subjects shall be investigated?

I think that they can (indeed, that they must)—but with certain clearly formulated provisos. A Government is at perfect liberty to embark on a largescale and comprehensive official scientific policy. It can legitimately decide that that policy shall be predominantly practical—designed to raise the standard of life, to improve health, to increase production, or to promote military efficiency. It can legitimately demand that the scientific curriculum throughout all stages of education should be adequate and should be framed so as to give the best possible understanding of Nature and man's place in Nature, of the social functions of science and of its intellectual and practical importance. It can legitimately insist on large-scale educational campaigns outside the school and university system to help the general population to understand the value and importance of science as a whole or of this or that branch of scientific work, or to make them feel that they are actively and intelligently participating in the nation's scientific effort. It can legitimately do everything in its power to check superstition, to combat unscientific or anti-scientific attitudes of mind, and to promote an understanding of scientific method, and of its value and importance.

Probably all men of science would agree that it is legitimate, and most of them that it is desirable, for a Government to embark on such a policy. But they would assuredly only agree on certain conditions. In the first place,

they would say a Government* has no right to pronounce in any way on the truth or falsity of any scientific facts, laws, or theories, nor to exert pressure in favor of their acceptance or rejection by scientists. It must not subordinate the intellectual autonomy of science to any other criteria, whether religious, philosophical, or political, nor seek to impose upon scientific truth standards other than its own, nor relate scientific activity to any orthodoxy or authoritarian principle, nor, most of all, impose a scientific orthodoxy.

As implication of this, it must consult scientific opinion in forming its scientific policy, and leave all essentially scientific decisions in the hands of men of science. On the educational side of its scientific policy it must, of course, consult educationists as well as scientists, and recognize their autonomy in their own sphere.

It must recognize the special characteristics of science and the scientifie method—the fact that it is essentially a universal activity; that for its advance it depends very largely on freedom of publication, which, in its turn, implies freedom for other scientific workers to test and re-test published conclusions; that major advances in scientific knowledge cannot be planned to order, and that new possibilities of practical advance often derive from the most unexpected quarters, including investigations undertaken with no practical aim [illegible]

As a consequence of these characteristics of science, the State should permit the utmost freedom of publication consonant with military security; it should encourage the international exchange of publications and research workers to the fullest extent; and it should not insist on all research, even all research paid for out of government funds, being directed to immediate practical objectives, but should leave a considerable "unplanned sector" of fundamental reseaach to the free choice of the pure scientist.

In education, while not in any way minimizing the importance of science as an organized body of tested knowledge, it should also recognize the value of scientific method—of free inquiry and free discussion, with reference back to fact where possible, as against dogmatic assertion and unreflective assimilation.

Meanwhile, I would suggest that scientific workers in general, and biologists in particular, have a responsibility in seeing that the great generalizations of modern genetics and evolutionary biology, which have so many important implications in so many fields, should be admitted as an indispensable part of general education.

IN GENERAL, the State must recognize that science has an autonomous aspect. In the first place, it is a quest for knowledge and understanding of Nature as well as a means of controlling it, and some of the most valuable discoveries have been made by men completely unconcerned with possible practical importance, and interested only in discovery for its own sake. In the second place, although scientific progress is obviously conditioned by its social and economic environment, it is not wholly determined by them. Granted that scientific activity is maintained at or above a certain level, it has a certain momentum of its own, which will automatically lead to the clarification of fields for exploration of which has begun.†

I would suggest that the time of propitious—and also pressing—for men of science all over the world to unite in thinking out of these problems, and, in particular, in defining the scope and degree of the autonomy of science in relation to other higher activities of man, to

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*This applies equally to the political organization in a one-party State (for example, the Communist Party in the U. S. S. R.), which in some respects is supra-governmental.

† Dr. J. R. Baker has directed my attention to the fact that the above suggestions are much along the lines of those put forward by the Society for Freedom in Science during the past nine years.

politics, and to the State. The final outcome should, I think, be a public statement, brief yet comprehensive, a profession of scientific faith, and affirmation of the rights and duties of science and of scientists.

In framing this, the leading role should doubtless be taken by the premier national scientific bodies. Thus, in Britain, we might hope that the Royal Society would take the responsibility. It would presumably wish to consult other bodies which have paid special attention to the subject, such as the society of Freedom in Science, and would doubtless endeavor to secure as much support as the British Association and the Association of Scientific Workers, from regional bodies like the Royal Society of Edinburgh, and from the institutes and societies concerned with particular branches of science, especially those dealing with genetics and evolutionary biology.

To put the matter on an international basis, the International Council of Scientific Unions should be called upon, which would then presumably make contact with its various constituent unions, and with international professional bodies such as the International Federation of Scientific Workers.

A manifesto of this kind, subscribed to by the greatest possible number of scientific organizations and societies, would be a powerful instrument of scientific freedom and an affirmation of the supra-national and universal character of scientific activity.

THE converse of this should also be undertaken, namely, the formulation of an international charter for science by the intergovernmental agencies concerned —UNESCO in the lead, but with the co-operation and agreement of the other specialized agencies concerned (notably the Food and Agriculture Organization and the World Health Organization) and of the Economic and Social Council of the United Nations. In this, the governments concerned would guarantee certain rights to science and to scientists, while presumably at the same time defining certain duties expected from them.

The third and quite specific question remains—how to presuade the U. S. S. R., together with any other countries which may be concerned, to reverse its present policy toward science. Clearly nothing can be done here save by way of precept—through an intergovernmentally agreed charter as suggested above; and of persuasion—through a joint approach of the scientific academies of the rest of the world, and perhaps through the International Scientific Unions. In the particular case of genetics, a joint approach might be made by the specialized societies concerned with genetics and evolution, perhaps with the co-operation of the International Genetics Congress and the International Union of Biological Sciences. Any such approaches should lay strong emphasis on the unity and international character of science, as well as on the advantages of scientific freedom and autonomy *vis-a-vis* political or philosophical orthodoxy.

THE actions and the methods of Lysenko and of the Academy of Sciences in supporting him are in my view intellectually and socially deplorable. But if the issues of principle which they have raised are clearly grasped and taken to heart by men of science in general, and the conclusions from them resolutely drawn, the battle of Soviet genetics will not have been fought and lost in vain. For this will mean that over the great majority of the world the scientific movement will for the first time have become fully conscious of itself and of its social functions, of the vital importance, but at the same time the limitations, of scientific method, of the equal importance of a proper degree of scientific autonomy, and of the rights and duties of science in relation to other higher activities of man, to the State, and to human society as a whole.

Bulletin of the Atomic Scientists
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FREEDOM OF SCIENCE AND THE UNIVERSAL DECLARATION OF HUMAN RIGHTS

BART J. BOK

Here an American scientist gives his answer to the question posed by Mr. Huxley in the preceding article: How shall men of science act in the face of increasing state pressure on science? Dr. Bok, Associate Director of the Harvard College Observatory, is Chairman of the National Research Council's Committee on UNESCO. This article was prepared by Dr. Bok for UNESCO and will appear in a more extended form as a pamphlet to be issued in the fall. The editors thank UNESCO for permission to use it in these pages.

SCIENTISTS are citizens and, in common with other people, they like their rights and freedoms. The scientist in his research laboratory desires freedom in the selection of research topics. He wants a minimum of direction and he should be allowed to talk freely about his research work. He should have access to the publications of other workers in the field and he should have the right to publish freely the results of his own investigations. If conditions make it necessary that there be certain restrictions on his freedom of communication, he wants to know beforehand what these restrictions are, and he should be free to reject research opportunities which do not guarantee to him the minimum requirements of freedom which he considers essential for his work. The scientist should have the right to communicate freely with his colleagues in his own country and abroad and he wants to have no restrictions put upon his freedom of travel and of correspondence.

Scientists are citizens and they want to exercise their rights as free citizens. They should be free to participate in the cultural and intellectual life of the community. They should be allowed to participate in their government, and, if this seems necessary, to criticize it. As citizens, scientists are prepared to accept the duties and responsibilities of citizenship and they are well aware of the fact that they must earn the right to be free men and women. They ask for some special dispensation because science, pure and applied, is so uniquely important to the welfare of the world and because advances in science are so critically dependent upon freedom.

The community which restricts the freedom of its scientists as citizens will lose in the end. In modern society, government at all levels is constantly faced with policy decisions involving complex scientific and technological matters. Wise decisions must rest in part on the advice of civic-minded scientists, and useful advice will hardly be forthcoming if scientists are not free to exercise their civic responsibilities.

Twenty years ago the problem of freedom of science did not seem very acute. The atomic bomb, jet propelled guided missiles and biological warfare were still to be found only in imaginative novels and in the comics. We still had to learn by experience how totalitarian states can restrict and pervert science. Then came the 1930's with the growing menace

of Naziism. We saw how a government, bent on conquest and world domination, silenced the cultural and intellectual leaders who refused to give up their freedoms. In the war years of the 1940's we saw how science had to be used to forge the weapons without which it would have been difficult—or perhaps impossible—to defeat the enemies of freedom. The peace which followed did not bring a feeling of security. Nations that had worked well together toward the defeat of the common enemy grew distrustful of each other's motives and we seemed soon far from the hopes of universal and permanent peace that were felt in the world in the spring and summer of 1945. The average non-scientist had good reasons to become suspicious of modern science, which had produced horrible weapons of war, and there came a wave of distrust of the men and women who practised these strange arts—the scientists.

We have perhaps stressed too much in these first paragraphs the gap that may seem to separate the scientists from the non-scientists. Freedom of science is not separable from political and economic freedom, and freedom of science is at most only a part of the much broader area of intellectual freedom. A businessman, an industrialist, a technician, a worker, a farmer, a government official, or anyone who reads today about an attack upon a scientist's right to speak as he wishes, or to travel freely may wake up the next day to find himself criticized and maltreated in very much the same fashion.

IS FREEDOM really essential to scientific advance? Could science not advance equally well, if scientists were given all the necessary material support while being restricted in some of their freedoms? Scientists feel sometimes a little impatient when these questions are asked and they tend to brush them aside. One cannot, however, deny that in recent years such questions are being asked with increasing persistence, especially by those who would like to see scientific research closely coordinated with military needs. We shall try to answer these questions in the pages that follow, but we must point out here that science advances most effectively by confronting one point of view with others opposed to it. Under the fascist regimes and under fascist occupation the suppression of the freedom of discussion had a deadening effect on scientific advance.

How can we preserve the freedom of science? Scientists must be made to realize that their freedoms can only be retained if they are willing to protest vigorously against all attempts at infringement of these freedoms. They must learn to take no freedom for granted and they should not relinquish their efforts to make it known publicly that without freedom society can never hope to obtain a maximum return from the individual scientist and from science as a whole. Scientists can not accomplish this task alone. They need the sympathetic support from non-scientists in all walks of life and in all professions. The freedom of science cannot be maintained unless there is in world opinion a climate favorable to it.

The Universal Declaration of Human Rights

ON DECEMBER 10, 1948, the General Assembly of the United Nations "passed and proclaimed" the Universal Declaration of Human rights. Here we find stated simply and directly the basic rights and freedoms to which the majority of the United Nations feel that their citizens are entitled. Several articles of the Declaration refer without ambiguity to the rights and freedoms that we have in mind when we speak of "freedom of science." Scientists must study the Declaration, not only because it is their duty as citizens to do so, but also as a simple matter of self-preservation. The Declaration must be made the basis for

study and for argument, for freedom should be something that is thoroughly alive in the minds of men.

The Declaration contains altogether thirty Articles, several of which bear more or less upon the freedom of science.

Article 19 of the Universal Declaration of Human Rights reads:

> Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

Article 19 strikes at the heart of what is meant by freedom of science. Other articles, notably Article 12,

> No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

and Article 13,

> (1) Everyone has the right to freedom of movement and residence within the borders of each state.
>
> (2) Everyone has the right to leave any country, including his own, and to return to his country.

supplement this.

As a group these three articles give expression to the scientist's desire to be free to write, to speak, and to publish as he wishes, to distribute his published results freely and to have access to the publications of others, to travel to distant parts, to attend meetings, and to speak without restriction about his work. From the scientist's point of view, these three articles are important since they state clearly the minimum rights that must be guaranteed if there is to be freedom of communication.

We have tried to show already that it is wrong to think of scientists as a group of citizens distinct and different from the rest of us. To be effective in he work, the scientist needs as much as anyone a guarantee that he will be accorded the rights expressed in Articles 20-26 of the Declaration. These include the right to freedom of peaceful assembly and association, the right to take part in the government of his country, the right to social security, to free choice of employment without discrimination, the right to rest and leisure and to an adequate standard of living, and the right to an education.

Article 27 is especially important to the scientist. Paragraph (1) reads:

> (1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

If this Article had been written twenty years ago, it would, to the majority of the world's scientists, have seemed like an admirable statement, but it would not have been considered by them as especially significant for the scientist. In recent years there has been a wide questioning of the scientist's right to free participation in community activities. In the days of the atomic bomb, scientists are supposed to be much more careful than non-scientists in choice of organizations that they join or in the popular causes that they wish to espouse!

Paragraph (2) of Article 27, which reads as follows,

> (2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

deals with such matters as copyright and patents. With regard to copyright, the scientist's problem is not different from that of any other author, and generally it is less acute. The right to the individual's personal material benefits from a discovery, the right to a full financial return on a patent, is one of great importance, especially to the workers in the applied sciences and engineering.

Rights and freedoms are meaningless unless they entail certain duties and responsibilities. We shall speak about these more fully in the concluding section, but we do well in closing this one to quote here the first paragraph of Article 29:

(1) Everyone has duties to the community in which alone the free and full development of his personality is possible.

Threats to the Freedom of Science

TOWARD the end of the nineteenth and the beginning of the twentieth centuries, the organization of scientific research was far less complex than it is today. In the United States basic research was largely confined to privately endowed universities. The first large research laboratories of industry were developing, but these had not yet reached the importance that they have today. The government's involvement in research undertakings was a relatively minor one. In Europe, scientific research was msotly done in government-supported universities, but, on the whole, scientists were free from extensive supervision and direction. Society accepted gratefully whatever scientific research had to give, and there was little attempt at direction or pressure from outside. The scientists did all of their own planning.

The differences between scientific research as it is practiced today and as it was fifty years ago are probably largely the result of the following circumstances:

1. Modern technology and industry are dependent upon the results of pure scientific research, supplemented by carefully-planned programs of development, most of which must be executed and directed by highly competent trained scientists. The giant modern industrial laboratory is very much the outcome of twentieth-century science.

2. The Communist revolution presented us with the attitude that the sole purpose of science is to serve the interests of the common people and that there is no science "divorced from politics anywhere in the world." In Communist countries the progress of science was to be fostered, but science became in some respects an instrument of the state.

3. In the non-Communist countries, the governments have had to assume increasing responsibilities for the social welfare of their people. Increased governmental participation in conservation of resources, power development, agriculture, transportation, and health has made it necessary for these governments to depend increasingly upon the advice and assistance of scientists.

4. World War I suggested, and World War II demonstrated, that science and technology are all-important to modern warfare. The modern military establishment resembles in many ways a giant laboratory for research and development.

5. Modern science is elaborate and expensive. An effective cyclotron cannot be built by one or two men with nothing but simple laboratory equipment available to them; the price of a powerful new telescope may readily be in excess of one million dollars.

6. Experience with planned research programs executed by carefully selected teams of experts has demonstrated that in certain areas of science, especially in medicine and in applied science, knowledge can be advanced rapidly by teams of research workers operating according to a carefully designed master plan.

ONE immediate consequence of these trends toward bigness, toward organization and planning, and toward social and military significance, is that society will naturally seek ways of controlling and guiding the young monster, with, as an almost inevitable result, restrictions in the freedom of science. The idea of the patent, which had originally been designed to protect the individual inventor and to prevent secretiveness about inventions, was perverted to the extent

that it has become more conducive to monopoly than to the thriving of a competitive capitalistic society.

The scientist in an industrial laboratory can never be completely free in the selection of his topics of research, and even the large university laboratory has become so complex that there has had to be an increasing emphasis on organization and direction. In a Communist society, scientific research is subject to planning from above, with social and political considerations frequently of greater importance than the interests of pure science; scientists who do not conform with political directives are in danger of being discredited, dismissed from their positions, and even purged. In non-Communist countries, the trends of governmental and military control are also generally restrictive in nature. To the political, and especially to the military, leaders, the scientist's desire for complete freedom of communication of ideas seems unreasonable, and unless these leaders understand from long and intimate association just how science operates, they are generally not in sympathy with the scientist's appeals for complete freedom.

SCIENTISTS of the present day can no longer take it for granted that they will be permitted to enjoy all of the traditional freedoms. In a society in which certian restrictions of freedom are unavoidable, there will always be a tendency to impose the maximum restrictions. We are not living in a benevolent utopia in which the scientist, in his traditional ivory tower, has his freedoms handed to him on a silver platter. No, if, as scientists, we want our freedoms, we must learn to fight for them.

Readers of the *Bulletin* need hardly to be reminded of the principal existing threats to the freedom of science. An entire recent issue was devoted to an analysis of the genetics controversy in the Soviet Union. The Soviet Government and the Soviet Academy of Sciences have seen fit to condemn officially and on ideological grounds the classical theories of genetics and have directed the geneticists of the Soviet Union to be guided in their researches by "Progressive Michurinist biology", which is the term used in the Soviet Union to indicate the Lamarckian approach.

No scientist, however, friendly he may feel toward the Soviet Union, can ever tolerate this policy. For it is the basis of all true science that the results of experiments are the supreme arbiters in controversies and that political or doctrinnaire concepts have no place in scientific argument. Impartiality and freedom from bias are the very root of scientific inquiry. Science totally loses its bearings if the government can lay down rules with regard to permitted and forbidden directions of scientific thought. What has happened recently in the Soviet Union in the field of genetics will almost inevitably lead to the imposing of similar restrictions in other fields. There are already signs that physics, mathematical probablity, and cosmic evolution are being subjected to ideological tests.

Threats to the freedom of science are not by any means limited to the Soviet Union, though it is true that they are there far more threatening then elsewhere in the world. In our own country we are plagued by *Classification* of scientific research in certain areas and by *security regulations*, which while they may be necessary for the safety of the nation, do not promote the free and unrestricted interchange of ideas among scientists. We have *loyalty investigations* of many varieties, some of them again justifiable in part on the basis of national security, but others which are little more than witch hunts, designed not only to discredit the individual who happens to be the victim, but generally aimed at suppressing through fear the free expression of opinion by others.

Internationalism, Peace and the Freedom of Science

THROUGH the United Nations we are all participating in an experiment, the purpose of which is to discover ways in which the nations of the world can learn to live in peace while they continue to operate as separate political entities. The primary aim of the United Nations is not so much the avoidance of war as the aggressive promotion of world peace. Since a lasting peace can be had only in a world where there exists a genuine desire for international co-operation and friendship, it is pertinent to ask how the freedom of science bears on internationalism and world peace.

Science by itself is neither good nor evil and the effect of science upon humanity depends wholly on the way in which we make use of the power given to us. In other words, science is impersonal, and whether or not the results which science produces will be beneficial to mankind depends upon the way in which the results of scientiefic work are applied. It is not possible to say simply that seience has had either a bad or a good influence upon internationalism; the only statement that we can defend is that science exerts at present a profound influence on peace and internationalism. To illustrate the point, we need to mention only one instanee of a scientific development that is affecting international relations and which presumably will continue to do so for years to come: the advent and application of research in the properties of the atomic nucleus.

Much as we may hate war, the moral issues of the use of science in war are far from clear-cut. Let us consider the case of the atomic bomb. In the United States an overwhelming majority of the people holds that the use of the atomic bomb over Hiroshima and Nagasaki was justified because it helped to shorten the war and because for every human life destroyed in this bombing the lives of hundreds of soldiers were saved on both sides. On the other hand we find that the use of the atomic bomb was considered an immoral war crime by large groups outside the United States and by many inside the United States. The use of science in war can not be condemned on an absolute basis. Those among us who consider themselves the strongest supporters of the United Nations, would, I believe, be grateful for the modern scientific weapons of war if the need should arise to break the power of an aggressor intent upon destroying the foundations of the peaceful world which we are trying to build under the United Nations

SCIENCE loses its impersonal character as soon as the issue of the freedom of science is brought into the argument. If the results of scientific research are freely available, and if the avenues of world-wide communication are kept free and open, then scientists, with the aid of men and women in many walks of life, can use science to help create an era of international goodwill. The fruits of science freely exchanged can assist in the building of a world in which hunger and privation are eliminated.

Intellectual freedom and freedom of comunication are essential for the creation of a spirit of cooperation and mutual understanding among the peoples of the world. Free science makes a fundamental contribution toward world peace and world government through the support which it provides to the many rights and freedoms embodied in the Universal Declaration of Human Rights. The observance of the principles of freedom of inquiry and of freedom of thought in science is a constant challenge to any thing in politics or in the cultural realm which tends to be dogmatic or absolute.

WE HAVE thus far dealt with science and the freedom of science and we have not referred to the scientists themselves. Scientists are citizens and I doubt that, on the whole, they are either very much better or very

much worse citizens than the rest of us. Scientists are human beings whose primary social function it is to work to the best of their abillity for the advancement of science, almost irrespective of the uses to which their discoveries might be put. It has been said that scientists cannot and should not be expected to foresee the consequences of their work and that they can influence only in very minor ways the uses to which their discoveries are put; I rather disagree with this point of view. A scientist who ponders the social consequences of his work is in a very much better position to arrive at valid conclusions than a lawyer or a politician who lacks the background for an understanding of the basic development underlying the discovery. A scientist should not try to be omniscient, but in his own special area of activity he should be able to evaluate more clearly than his fellow citizens. As an example, we consider again the application of nuclear research, especially as far as it deals with the peaceful uses of atomic energy. Here is an area in which progress depends to a great extent on the readiness of the expert scientists in the field to take a leading part in the long-range planning. If this planning is to be done on a world-wide scale, it must be done in a spirit of freedom of inquiry.

Internationalism in science is at present subject to many forms of control. International barriers to the freedom of science are imposed because of fear of war, of political involvement, or of a possible loss of political advantage. Not infrequently they result from the narrow-mindedness and provincialism of those in power. Scientists know from everyday experience how close we are to one world of science and they have, therefore, a special responsibility of working for the removal of all unnecessary barriers.

The free interchange across national boundaries of men and ideas is basic to the advancement of science; almost every field owes its development to the work of men and women from many different nations. One does not need to go very far back in the history of science to prove this, for in every area of scientific research the present state of knowledge has a truly international background. I can readily illustrate the point with an example drawn from my own field of research in the structure and motions of our Milky Way System. Advances in this relatively small field were by no means made only by astronomers from one country. If I were to list the twenty astronomers who, over the past half century, have done the most for Milky Way research, my list would contain men and women from the United States, Great Britain, Canada, the Netherlands, Sweden, Germany, Switzerland, the Soviet Union, and India.

The story of the astronomers has its counterpart in every field of scientific research. No significant advance in medicine, for example, is the product of research by nationals of only one country.

PERHAPS the most dramatic demonstration of the international character of science was given in the war-time studies leading to the large-scale release of the energy of the atomic nucleus through the atomic bomb. At Los Alamos American scientists were working side by side with their colleagues from many European countries, notably with some of the world's most distinguished refugee physicists from Germany and Italy.

Science cannot be world-wide unless it is free. In most fields of research advance would have been stifled if there had not been a continued interchange of men and of opinions. Since a wide exchange of knowledge has traditionally been helpful to the advancement of science, scientists must ever be on the watch against threat to the freedom of international communication.

Non-scientists find it often difficult to imagine how strong can be the bonds out of common interests between scientists of totally

different national back-grounds, living at opposite ends of the world, but working upon researches in the same general area. Does not the world at large stand to benefit by these international friendships among scientists? I think that the answer to this question is "yes" for, through the establishment of intimate contacts between scientists of different nations, we are laying in a perfectly natural way the foundations for widespread contacts of peoples of different lands — contacts which in the end must help to make the peace secure.

TO THIS point we have principally stressed the immediate and practical benefits which the world may expect if we permit science to operate within the framework of its traditional freedoms. There are, however, certain intangible ways in which free science contributes to the creation of a climate favorable to world peace. We must here again distinguish clearly between science, the impersonal large body of verified facts and the correlations between these which we generally call the laws of nature, and "free science," which is the same science now made alive by the personalities of free investigators, which creates in an adventuresome spirit and the basic attitude of which is one of curiosity and of doubt.

Science, free or otherwise, will in the end almost surely lead to "one world". It does not necesarily follow, however, that this world is going to be a pleasant one, the kind of world in which we like to think that our children and grand children will grow up. Without freedom, this "one world" might well resemble in many ways the *Thousand Year Riech* which Adolf Hitler envisioned and which the United Nations were forced to oppose by fighting World War II. The chances for a free world, one in which the individual is given the opportunity of leading a full life, are, however, much better if science is allowed to make its contributions to society in an atmosphere of responsible freedom. Free science can be a strong ally in the common effort to achieve the "one world" of the Universal Declaration of Human Rights.

IT HAS been pointed out many a time, most forcefully in recent years by Harlow Shapley, Harlod C. Urey, and Arthur H. Compton, that scientists come closer than any other group of individuals to being world citizens. This is not specially to the credit of scientists, since it is brought about by the natural "one worldness" of their field, but it does place upon scientists certain definite responsibilities. In the words of Compton: "Scientists are protoypes of world citizens". As long as science is free, scientists are almost automatically joined in a world brotherhood, and it is fevrently to be hoped that the scientists of the world will realize that in the Universal Declaration of Human Rights lies the promise of a guarantee for their cherished freedoms and that it is their responsibility to join the forces that must lead in achieving the universal adoption of the Declaration.

As citizens we are all free to express our preferences with regard to our desired forms of national government and of world government but these questions need not divide us when we join in the world-wide campaign for the adoption of the Universal Declaration of Human Rights. We may compromise with regard to the political and economic systems under which we live, but no compromise is possible when we are called to the defence of our basic rights and freedoms.

Implementing the Declaration

THE Universal Declaration of Human Rights is issued at a time when the freedom of science is under attack from many sides. Scientists have reason to be grateful to the drafters of the Declaration for we have been given an inspiring restatement of basic principles to guide us in the fight for the freedom of science. While the strength of the Declaration lies in its general applicability, scientists, like any other group of people in our society, must give thought to ways

of implementing the Declaration and they should try to put into words just how certain Articles of the Declaration affect them.

As sclentists we do well to realize that in the fight for freedom of science we must strike a balance between defense and offense. Our principal defense consists in being ever watchful for unjustifiable infrengements of our freedoms and in protesting promptly and vigorously whenever the occassion calls for a protest. As part of our offense we must demonstrate repeatedly, and by example, that freedom of science has paid off in terms of scientific advancement and that free science has a big contribution to make toward the creation of a meaningful peace and toward responsible world government. The advance of science without freedom must in the end lead to the enslavement of science, no matter what may be the nature of the economic or political system that poses restrictions.

It is worth repeating once more the truism that the facts of nature know no ideological boundaries. In the days of the Inquisition, Galileo fought the fight for the freedom of science and Bruno was burned at the stake because of his refusal to accept the Church's dogmatic attitude with regard to the Copernican theory of the solar system. Even in our enlightened twentieth century we have seen the spectacle of religious fundamentalism refusing to accept or consider the unprejudiced verdict of scientific experiment, and quite recently we have seen how totalitarian governments have found it impossible to tolerate in their countries scientists whose basic philosophy is that no single theory remains unchallenged and unchanged for long. To these threats scientists have invariably replied that the growth of science and of civilization is stunted as soon as we abandon the principle of freedom from dogma.

We have seen in the earlier sections that largely because of the growing importance of science in society, the outside world attempts to control and direct the development of scientific research. We need not enter again into the motives for this course of action, but we should recognize that besides fear and greed, or a short-sighted desire for power, there may exist an honest desire to advance civilization by leading science along clearly-defined paths. Unfortunately science does not advance in this fashion ; science remains to a considerable extent accidental, and the opportunities are often not realized until in the course of the research one stumbles upon them by accident. At certain stages of development—especially in the area of technology—there is room for planned research and for operational research, but in much of our basic research we shall continue to work by the use of seemingly wasteful and haphazard methods, with the individual scientist or institution doing the planning.

Freedom implies an attitude of responsibility in the person who profits by it. While science certainly has important contributions to make to society, it cannot by itself give us the key to the solution of the complex problems of society. To be an effective practitioner of freedom, a scientist must be sensitive to the ever-present need for guidance and he must be eapecially careful not to confuse freedom with an unwillingness to co-operate.

THE Universal Declaration of Human Rights is like a call to arms to all men and women of good will. What opportunities are there for enlistment? Since in this article we are very much concerned with science and scientists, I wish to take advantage of the opportunity given to me and make certain very specific proposals about the way the individual scientist can participate in the fight for freedom and the good life. I propose that every scientist should deliberately set aside one afternoon or evening a week—say three to six hours—to give thought to the broader social implications of his own work and of that of his fellow scientists and further that, depending on his personality and

inclination, he should in some way make known the conclusions at which he arrives.

When scientists are approached with requests for participation in some socially significant activity, their excuse for refusal is frequently that the cause is one thoroughly deserving of support, but that the individual who is being approached is too busy with his or her own work to join. I have much sympathy with this point, but I would retort that in a period of world crisis like the present, the hope of survival lies in political and social action by the individual. It almost seems as though the time thas come when we must all try to be good scientists on Monday, Tuesday, Wednesday, Thursday Friday, save the world on Saturday, and recuperate on Sunday.

THE choice about how to proceed with the discharging of one's social responsibilities is very much in the hands of the individual scientist. Some may find it more satisfactory to join organisations formed expressly for the purpose of study and action on the social implications of science. Others may prefer to work through their professional scientific organisations, and still others may prefer to work through community groups in which the scientists are at best a small minority.

The most important individual decision is that of the choice of the area, or areas (preferably not too many), for one's extra-professional activities. We should apply to this choice the same sort of judgment which as scientists, we employ in the selection of a research topic. Special competence may play a role in our decision, or we may turn to a topic apparently passed over by others. An astronomer, for example, will generally have considerable experience in the field of international relations, but he would normally be neither a very much interested, nor an especially effective member of a group inquiring into revision of our patent laws. An atomic scientist may join the astronomer's study group on international relations, or he may wish to examine the problems of the possible usage of nuclear energy as a source of power in under developed areas. Or, instead he may decide that what his community needs most is popular education in the basic physics of the atomic nucleus. An engineer or industrial scientist may join in the nuclear physicist's project for the study relating to under-developed areas, or he may wish to undertake the patent study which failed to arouse the interest of the astronomer.

SOME scientists, just like many other citizens, have a hearty dislike for joining voluntary organisations; they may prefer study to action. From serious study and contemplation they may form opinions which in their total effect may do more good to the world than all the committee work taken together. As long as there is freedom of expression, a single intelligent individual can wield great power for the common good.

For many scientists education is an important professional activity. Those scientists who are good teachers and speakers will find popular education a rewarding field for extra-curricular activities. Much of the existing popular fear and distrust of science and scientists comes from lack of understanding. The need for popular education on basic nuclear physics has already been mentioned, and every field of science can present its own list of topics for mass education. The scientist who participates in popular education will generally discover that his science benefits by contacts with a great variety of people.

To date the emphasis has largely been on the popularization of the results of scientific research, and, while any form of science education is to the good, an over stressing of the results may develop an "amazing story" attitude in the listener and may not contribute to his understanding of the basic aims and methods of scientific research and of the spirit in which this research is done. Mass education should

be only a part of our total educational effort. The most urgent need of the moment is perhaps for a program aimed specifically at our political and economic leaders, among whom we find often a tragic lack of understanding of science coupled with, atleast in some cases, a strong desire to learn.

The United Nations and the Specialized Agencies are very much in need of sympathetic support from scientists. Several of these Specialised Agencies are to a large extent concerned with problems in pure and applied science and they depend heavily on the voluntary support from scientists outside the organisation; UNECO offers a wide area of activities for scientists who wish to contribute to international understanding and to world peace (see for example an article by the author in the July issue of *Physics Today*).

We noted earlier in this article that science seems to move us more and more toward a unified world. This implies the need for some form of world government, and it is not surprising that scientists are playing leading parts in the various movements toward world government. Scientists who are aware of the potential destructiveness of modern scientific warfare can probably make a greater contribution by working positively for world government than by the nagative approach of fear propaganda. It has been suggested that scientists might well take the lead in conditioning the public mind for the acceptance of constitutional world government.

Toward A Charter for Scientists

IN THE concluding sections of his great article on "Soviet Genetics", which are reproduced in the present issue of the *Bulletin*, Julian Huxley points to the need for a public statement of scientists faith, a *Charter for Scientists*. He suggests ways in which one might go about the drafting of such a Charter. I heartily agree with the reasons given by Huxley, and I would add that such a Charter is a necessity if we desire a brief formal statement about the specific rights and duties of a scientist that follow from the *Universal Declaration of Human Rights*.

In recent years there have been sporadic discussions about a Charter and some tentative drafts have actually been proposed. The author has been privileged, as a member of the Committee on Science and Its Social Relations (C.S.S.R.) of the International Council of Scientific Unions, to participate in the drafting of one such Charter at a conference in Paris in June, 1948. This particular draft was admittedly a first attempt prepared for the purpose of arousing public interest, as the C.S.S.R. explained in its official announcement. I was given the assignment of publicising the Charter in the United States and of soliciting comments for use in subsequent drafts.

THE Charter for Scientists differs from the Universal Declaration of Human Rights in that the Charter stresses equally the rights and the obligations of scientists. Our critics drew attention to certain basic flaws in the Charter as originally proposed (see: *The American Scientist*, XXXVII, 123, [1949]). They pointed, for example, to the omission of one or more articles dealing specifically with the contributions that science can make to world government and with the obligation of scientists to emphasize the human values of science.

Some of the correspondents, while agreeing to the spirit of the first half of the Charter, the Article dealing with the obligations of scientists, expressed doubts about the need of giving to these points the formal status of a Charter. I rejected this objection, since in the complex world of today there are many scientists who look for guidance that can come from a well-written common code of the profession. It may be many years before we can hope to achieve the universal adoption of the Charter by scientific societies, by nations or by international bodies, but in the meantime the

mere existence of a Charter focuses attention upon the need for consideration of its basic premises. *I can see tremendous gains if individual scientists in considerable numbers were to decide solemnly and voluntarily to attach their signatures to the Charter.*

There were many strong and to some extent justified criticisms of the second part of the Charter, the articles dealing with the rights that scientists must claim in order to be able to fulfil their obligations to society. After a year of reflection, I can see that we lacked in wisdom when the last three articles were formulated. It has been pointed out to us that scientists should have no claims to economic security other than those accorded to all citizens. Serious objections have been made to the inclusion of the right of access to information about the purposes for which the work is being done and of thc rights of the freedom to publish and of the freedom to discuss the results of one's work. It has been pointed out to us that the military could not possibly employ a research scientist who subscribed to these two articles and that it was unrealistic to expect industries in a competitive society to grant to their research scientist these specific rights and freedoms.

As one member of the C.S.S.R. who assisted in the drafting of the Charter (and I must make it clear that I am speaking solely for myself), I acknowledge the partial validity of the objections and I would be prepared to cast my vote for a modified version of the second part of the Charter. And yet, I do not regret that we stated these rights in the form that was adopted in Paris; we were perhaps aiming at an ideal rather than a practical solution of the difficult problems that scientists are facing today.

In a modified version of the Charter it may be desirable to omit altogether the reference to economic security in the first Article of the second section of the Charter, provided that it be understood that scientists, like all citizens, are entitled to the economic rights of the Universal Declaration. The second Article could be softened by insisting only upon the right to obtain *general* information regarding the purposes for which assigned research projects are being done; scientists must, however, insist upon the privilege of knowing the basic aims of the research projects in which they are asked to participate and no one should undertake to work on a project which he believes to be socially or morally wrong. The major objections to the third Article of the second section can probably be met by a slight change of wording and the addition of one clause.

AFTER careful study of the various comments in the Draft Charter, I have submitted to the C.S.S R. a revised Draft Charter, incorporating many of the suggestions during the past year. The new draft is by no means a final one and the principal purpose of printing it here is to elicit further criticisms and suggestions.

In the end it will probably prove to have been all to the good that the C.S.S.R. by its somewhat precipitate and idealistic action focused attention, not only upon the need for a Charter, but also upon some of the main unsolved problems of the day. The battle for freedom of science is half won if we learn to recognize and isolate the principal threats and dangers. We have now as guides for battle the Universal Declaration of Human Rights and the feeble and untried weapon of a Charter that is yet imperfect. May the discussion proceed.

A REVISION OF THE CHARTER FOR SCIENTISTS PROPOSED BY BART J. BOK

IN consideration of the prominent place which science holds at present in society, and of the rapid transformation of the world through the application of science, and in consideration further of the fact that scientists can obtain and use information not readily available to others, the scientific worker has certain obligations

toward society over and above the ordinary duties of citizenship.

It is therefore the duty of every scientist :

a) to maintain a spirit of honesty, integrity and cooperation;

b) to examine searchingly the meaning and purposes of the work that he or she is performing and, when in the employ of others, to inquire into these purposes and to evaluate the moral issues that may be involved;

c) to promote the development of science in the ways most beneficial to all mankind and to exert his or her influence as far as possible to prevent its misuse;

d) to assist in the education of the people and of governments in the aims, methods, and spirit of scientific research and to keep them abreast of scientific progress;

e) to promote international collaboration in science, to work for the preservation of world peace, and to contribute toward a spirit of world citizenship;

f) to emphasize and develop the human values associated with science and technology.

In order to be able to fulfil these obligations, scientists must claim certain rights, the principal ones of which are :

g) the right to participate freely in all activities permitted to the average citizen;

h) the right to obtain general information about the purposes for which assigned projects are being done;

i) the right to publish the results of his or her researches, as well as full freedom to discuss work in progress with other scientists, except where these privileges may have to be restricted for socially or ethically justifiable reasons.

Bulletin of the Atomic Scientists
August-September, 1949.

WORLD FEDERATION OF SCIENTIFIC WORKERS

THE growth of science and the scientific profession has led to the creation of organizations of scientific workers in many countries. It is a natural result of the increase in the number of scientists, and their concern with the bearing of their work on society and the conditions provided by society for their work.

The war stimulated these developments very greatly. Scientists were brought into the national effort on a new scale of magnitude, and by their achievements acquired a higher status than before, both in government and in public estimation.

In England, the British Association of Scientific Workers grew rapidly, in number and influence, and similar growth occured in some other countries. These growing associations of scientists in the various countries naturally became interested in each other's problems, which had many common features, and also characteristic differences, reflecting the different circumstances and traditions in their respective countries. The various associations began to correspond with each other, to exchange views and provide mutual advice and strengthen international action in science.

This multilateral correspondence strengthened the various organizations in their requests to their respective governments that they should

support the proposal that science should explicitly be given a place in the new United Nations Cultural Organization.

The inclusion of science in the title, and of sciences divisions in the structure of UNESCO is due in a considerable degree to the spontaneous collaboration of associations of scientific workers in several countries.

The idea of forming a world Federation of associations of scientific workers arose independently in several of the national associations. In February, 1946, the British Association of Scientific Workers organized a conference on Science and the Welfare of Mankind. The Chairman at the opening session was Sir Robert Robinson, President af the Royal Society of London, and the first speech was made by the Right Hon. Herbert Morrison, Lord President of the Privy Council. At the final session, Dr. Julian Huxley made his first public speech after his appointment as Executive Secretary of the Preparatory Commission of UNESCO. Scientific representatives from nine countries attended this conference, and discussions with them disclosed a unanimous desire for creating a world federation of scientific workers. It was agreed that the British Association of Scientific Workers should prepare a draft constitution for a world federation, and should convene a meeting of delegates from the various national associations.

The Inaugural Conference

The meeting was held in London on July 20th, and 21st, 1946. It was attended by delegates and observers from eighteen associations, representing fourteen countries and the natural sciences division of UNESCO. It was opened by Professor P.M.S Blackett, President of the British Association of Scientific Workers. He outlined the history of the Association describing how it had been founded as a trade union in 1918, how it ceased for a time to be a trade union, and how it resumed this qualification in 1941, during its very rapid expansion at the beginning of the last war.

The Association has two main motives: the improvement of the career of the scientist and technician in every aspect - facilities for training, economic reward, working conditions and status - and the advancement of the use of science for the welfare of humanity. The Association admits scientific workers of all grades from professors to laboratory assistants, and from all branches of science including social science. It differs from the learned societies and professional institutions in its preoccupation with the economic conditions of scientists and with the application of science to society. It has entered the political arena in the pursuit of these aims in a way that those other bodies cannnot or will not. The Association is the product of the history of Britain during the last quarter of a century in so far as it has affected scientists. In other countries conditions have been different, and the organisation of scientific workers has developed on other lines consonant with the different conditions. But the associations in the various countries, though differing in various ways, have sufficient in common to make a federation possible and effective.

There are many problems on which international discussion and action by scientists is required. For instance, the various national viewpoints on atomic energy require synthesis. This could scarcely be done except by a world federation of scientists. Such a body could promulgate agreed scientific views on the problems of food production, on the repair and rehabilitation of countries ravaged by war, and on the ethical principles which should guide their conduct.

Dr. Joseph Needham, Director of the National Sciences Division of UNESCO, described the aims of his Division. These include cooperation and support for the International Scientific Unions, rehabilitation of scientific activities, provision of laboratories for specialized operations, such as the study of the natural resources of the Hylean Amazon.

His audience were unanimously of the opinion that a world federation of scientific workers would approve such aims, and support of UNESCO by enlisting scientific and public opinion in favour of its scientific policies would be one of the federation's important functions.

The meeting unanimously carried a motion to form the World Federation of Scientific Workers, and proceeded to the consideration of the draft constitution prepared by the British Association of Scientific Workers. After thorough discussion, the Executive Council was given directives for amending the draft and duly completed the following Constitution.

Important Features of the Constitution

Preamble.

The primary aim of the scientific bodies which subscribe to the constitution of the World Federation of Scientific Workers is the increase of human welfare through the application and development of science. Scientists can no longer passively acquiesce in the misuse of science, which not only brings about unnecessary suffering and waste but also impedes the advancement of science itself. Science can only be fully used for the betterment of mankind in an era of peace and international co-operation and scientists have, therefore, a responsibility greater than that of the ordinary citizen in maintaining stable political relations between nations. The men and women who are associated in the World Federation of Scientific Workers recognise this and believe that the long tradition of international collaboration and free inter-course that has distinguished scientific activities in the past forms a good basis for the furtherance of their aims in the future.

The past few years have witnessed in many countries the growth of organizations of scientific workers. While these vary in structure and specific objectives they are alike in recognising that the scientists should and can play a special role in the cause of world peace and in the improvement of human welfare. The World Federation of Scientific Workers has been formed in order to create an effective machinery which can be used by these various organizations for mutual assistance. This will include the promotion of the fullest utilization of science for the welfare of mankind and that freedom in science which is required for its unhindered growth. Further, the World Federation will strive for the improvement of the conditions under which scientists work as an essential condition for the proper development and application of science. The Federation will offer assistance to individual member organizations in formulating their policies and, when there is substantial agreement between the participating organisations, it will be able to speak for them all. Finally, it is hoped that the existence of the Federation will stimulate the formation of national organizations in these countries where, as yet, no means exist where by scientists can express corporately their views on the policies adopted by the governments.

The work of the Federation will have two aspects. It is necessary to collect data on how science may be applied and on how social, economic and political conditions affect the application of science. Then there is the task of developing an informed public opinion, which shall ensure that governments adopt appropriate policies. This implies a considerable amount of education of the public in the understanding of what can be achieved by the application of science and, also, an integration of the natural and social sciences.

It is believed by the members of the World Federation of Scientific Workers that the only way to prevent mass destruction by the misuse of science is through the elimination of war as an instrument of national policy. War, or the threat of war, can be prevented only if the peoples of the world understand the causes of war and are able and willing to ensure that those causes are removed. Science properly applied can remove or lessen the poverty,

disease and ignorance which in some measure are always among the causes of war. International organizations set up to combat these evils will receive the fullest support of the W. F. S. W. However, no matter how good the international organizations may be, it will still be necessary to influence national policies if war is to be avoided. For this reason also the World Federation of Scientific Workers hopes to foster the growth of socially conscious groups of scientific workers in all countries where they do not as yet exist.

These, then, are some of the considerations which have been borne in mind in the preparation of the Constitution. Its purpose is to ensure that the Federation shall be a democratic body of scientists which shall develop into a progressive and forceful influence working for a new and better world.

Objects.

The aim of the Federation shall be to promote understanding and co-operative action between the member organizations in order to assist the Federation and its constituent members in carrying out the following functions:—

(a) To work for the fullest utilization of Science in promoting peace and the welfare of mankind, and especially to ensure that science is applied to help solve the urgent problems of the time.

(b) To promote international co-operation in science and technology in particular through close collaboration with the United Nations Educational, Scientific and Cultural Organizations.

(c) To encourage the international exchange of scientific knowledge and of scientific workers.

(d) To preserve and encourage the freedom and co-ordination of scientific work both nationally and internationally.

(e) To encourage improvements in the teaching of the sciences and to spread the knowledge of science and its social implications among the peoples of all countries.

(f) Organizations in any one country or group of countries may either federate into one body which may seek membership of the Federation, or the individual organizations may apply for membership of the Federation. The decision of the Executive Council as to whether or not an organization or group of Organizations shall be admitted to membership of the Federation shall be subject to the approval of the next General Assembly.

The foundation members of the Federation shall be those Organizations which participated in the Inaugural Assembly of the Federation (London,1946) and which agree to support the objects and constitution by ratifying the constitution before the first General Assembly, and also any other organization which may be admitted to membership and who ratify the Constitution before the first General Assembly.

Working Languages.

The working languages of World Federation of Scientific Workers shall be English and French.

Constituent Associations which have already affiliated.

1. Canadian Association of Scientific Workers, P.O. Box 228, Ottawa, ONTARIO;
2. Czechoslovakian Association of Scientific Workers, Komornicka 28, PRAGUE, XIX.
3. The Danish Society for the Protection of Scientific Work, c/o, Alkil, Raadhuspladen 59., COPENHAGEN, III.
4. Association des Travailleurs Scientifiques de France, Maisonde L' Universite Francaise, 47, Boulevard St. Michel, PARIS Ve.
5. Syndicat National de L' 'Enseignment Superieur et de la Recherche Scientifique, Normale Superieure, 45 Rue d'Ulm, PARIS, Ve

6. Greek Science Reconstruction Society, 27 Ypsilandou St. ATHENS.
7. Netherlands Association of Scientific Investigators (VWO), Endegeester straarveg 11., Oegstgeest, HOLLAND.
8. Association of Scientific Workers of India, University Buildings, DELHI 2.
9. The New Zealand Association of Scientific Workers, P.O. Box. 3001, Wellinton, C.I., NEWZEALAND-
10. Association of Scientific Workers of Southern Africa, University of Cape Town, Rondebosch, Cape, SOUTH AFRICA.
11. The Association of Younger Swedish Scientists (SYNF), Hollandergatan 32-34., STOCKHOLM.
12. British Association of Scientific Workers, 15; Half Moon Street, LONDON, W. 1.
13. Institution of Professional Civil Servants, 17 Hans Place, LONDON, S. W. I.
14. American Association of Scientific Workers, 4, East 9th Street, New York 3, NEW YORK, U. S. A.
15. Union of Office and Professional Workers, 1860, Broadway, NEW YORK CITY, U.S.A.

First Assembly of the World Federation of Scientific Workers.

The World Federation of Scientific Workers held its first assembly in Prague from September 21st to 25th, 1948, as the guests of the Czechoslovak Association of Scientific Workers. 33 delegates and observers from thirteen countries attended, including representatives of the UNESCO and the World Federation of Trade Unions. A Press Conference attended by sixty representatives of the Press was held on the afternoon of Monday the September 28th when the officers of the World Federation answered many questions on its work and aims.

Professor Joliot-Curie, the President of the World Federation of Scientfic Workers, declared the assembly open at 11 a. m. on September 21st. Professor J. Belehradek was elected Chairman of the assembly and the first session of it concluded with the formal adoption of the federation's constitution. The 2nd Session opened with the Secretary General's presentation of his Report which was adopted unanimously. The 3rd Session of the assembly started on the morning of September the 22nd, with the appointment of four Working Commissions to deal with the following :-

1. The Organisation and Social Responsibility of Scientists.
2. Atomic Energy, Secrecy and Peace.
3. Reconstruction, Colonial Countries and Natural Resources.
4. A World Federation Journal, Finance.

Mr. N. Veall, M. Pierre Biquard, Mr. Tsin-Jen Chi and Professor J. Dembowski were elected chairman of the Commission.

The Resolutions and Proposals submitted by Affiliated bodies to the assembly were sent to the appropriate Commission for study, and the preparation of a recommendation of the Assembly, as to their acceptance.

Fourth Session of the Assembly opened with a presentation of the draft charter for scientific workers by the Vice-President, Professor J. D. Bernal. The Assembly unanimously approved the charter after a discussion. It was the first time in the history of science that scientific workers from every quarter of the globe, had succeeded in arriving at agreed general rules, concerning their duties and rights. After the conclusion of the Fourth Session, a public meeting was held in Prague and the subject of discussion was *Science in the Modern World*. The meeting was addressed by Professor F. Joliot-Curie (France), Professor J. D. Bernal (Britain), Mr. C. M. Liu (China), Professor S. Maximos (Greece), and Dr. K. Bratanav (Bulgaria). Later in the evening a Reception in Honour of the Assembly was held by Professor Nejedly, the Czechoslovak Minister of Education and the guests included leading Czechoslovak personalaties in the field of science and learning, members of the Diplomatic Corps and the Ministers of the Czechoslovak Re-public.

The Fifth Session of the Assembly on September 23, discussed the Reports of the Working Commissions and adopted various important resolutions covering a wide field. Later on the Assembly proceeded to the election of officers and members of the Executive Council and they included Professor F. Joliot-Curie, *President*, Professor J. D. Bernal, *Vice President*, Mr. J. G. Crowther, *Secretary-General*, Dr. W. A. Wooster, *Treasurer* and Professor M. N. Saha, the Regional Representative from the Middle-East and India.

The Charter of Scientific Workers, the various important resolutions adopted by the Assembly of the World Federation of Scientific Workers and speeches delivered by notable Scientists were published in the earlier issues of *Vijnan-Karmee*, the official Organ of the Association of Scientific Workers of India.

The World Federation of Scientific Workers publishes its official journal, *Science and Mankind* edited by J. G. Crowther and the Editorial Board consists of Professor Joliot-Curie, Professor Bernal, Mr. J. G. Crowther, Mr. E. Kahane, and Dr. R. C. Murray.

TRADE UNIONISM OF SCIENTIFIC WORKERS

By

V. R. Joshi

TRADE Unionism of scientific workers is a new feature of the public life in India. In foreign countries and particularly in Britain, such a movement has been in existence for about a quarter of a century and has more than justified its existence. This was natural, since the science of trade unionism in general has advanced much in those countries. It is a typically bourgeoisie movement and hence, as is customary with any movement primarily conducted for and by the middle class, its development is bound to be slow, particulary in this country where the middle class is comparatively secure economically. At least it was so till recently and the heavy jerks it has started receiving in its struggle for existence, has at least awakened it from the lethargy to which it was accustomed all along. With this consciousness that is slowly taking hold of the middle class, their trade unionism such as that of the scientific workers has come to stay. Force of circumstances has therefore made them shed the halo of semi-gentility with which they had adorned themselves so far. They are still nervous of joining industrial trade unions which is considered the most scientific type of trade unionism. However, this is explained by the novelty of the experiment which makes the middle class workers march cautiously. And this cautiousness has made them start craft unions of their own as is exemplified by the Trade Unionism of scientific workers. If it

was a question of merely popularisation of science, which is one of the main objects of the Association, that question could have been solved from one of the many platforms that exist in India to-day. So one has to admit that this movement is primarily Trade Unionism of scientific workers aimed at the economic betterment of the under-dog amongst the scientific workers. The other objects I consider as subsidiary, though they help to utilise the vast energies when the functional aspect of the trade union is at a low ebb.

The movement in this country is in its infancy. There is enough suspicion about the movement in the minds of the employers including the Government bureaucracy. Widespread cynicism prevails amongst the scientific workers themselves and more than that there is fear in their minds. To be honest, the mass of scientific workers though highly educated is not yet fully prepared for trade unionism and with the slighest jerk gets either confused or disheartened. It is not uncommon to see many a scientific worker telling you in hushed tone that since his promotion is due, he would join the Association only after the promotion has come through. Leaving aside for a moment the moral aspect of this question it must be admitted that the scientific worker, who is frank enough to admit his difficulty in joining the Association, is justified to some extent; for it is a common trick of the officialdom to dub a worker as inefficient and thereby mar his professional career even if the worker as a trade unionist were to oppose and criticise the bureaucracy from the platform of the Association. However, times have changed, thanks to the liberal attitude of the Government towards the healthy trade unionism; and if the scientific workers were to master the science of this healthy type of trade unionism they would at least get the credit of reforming the bureaucracy which still persists in having an autocratic frame of mind.

My idea in narrating some of my experiences as a Trade Unionist is to keep the workers conscious of what they may safely expect from the employers and particularly the bureaucracy so that they may not be taken unawares. No doubt much worse things have been experienced by the trade union workers in general in the past and many a sincere and innocent worker has suffered due to the vindictiveness of the authorities. But the attitude of the present Government towards healthy trade unionism, in my opinion, is definitely very encouraging and if we can take full advantage of this change in attitude and build up a healthy type of trade unionism amongst the scientific workers, it will be a legacy of which the future generation will be proud.

In one of the Government establishment in Poona, a non-scientific and very junior member of the staff was promoted to higher grade there by setting aside the just claims of a senior and technically qualified scientific worker who was a member of the Association. The Association had to intervene., and the officer-in-charge was requested through a representation to review the situation as the discontent amongst the scientific workers was mounting. Immediately on receipt of the representation the officer concerned used the common weapon of intimidation. He knew he was committing an offence against the law and hence took all the precautions not to leave any trace of this intimidation. He summoned the members of the Association from his establishment first individually and then jointly and threatened them with dire consequences. The members were confused inspite of our assurances and a few of them resigned. The others kept their resignations ready. It was a grave situation which threatened the membership of the Association from the establishment. The Association brought into force immediately the Government Conciliation Machinery and as a result what threatened to be extinction of the membership ultimately proved to be a blessing in disguise. The Centre also took prompt

action at Delhi and waited in a deputation on the respective authorities. As a result of this prompt and strong action members were infused with confidence and the membership of the Association in the establishment in question doubled within a short period, thanks to the very efficient conciliation machinery existing then in the Area.

A University teacher was approached by the writer and requested to join. With a patronising attitude, he gave many excuses for his not joining then and casually remarked that he might join at a later date. However, he did not fail to inquire whether some of his well-placed and higher-paid friends and acquaintainces have joined. On informing him that none of them has joined, he brought the discussion to a close abruptly and remarked that he might think of organising the Association during the summer vacation!

I cannot forget the incident when we had approached an officer of another Government establishment to explain to him the advisability of his scientific staff joining the Association. We must have spent about an hour discussing with him various aspects of the Association. He was a decent sort of officer and assured us that he would refer the matter to the higher authorities which he subsequently did and as a result of which a Unit of the Association started functioning in the Establishment later. But while we were on the point of leaving, he remarked half-jokingly and half-seriously "Well, gentlemen, what you say may be true. But somehow or other this 'Trade Unionism' of scientific workers sounds a jarring note to the ears." That remark sums up, perhaps more than anything else, the attitude of the official dom towards the Association. The bureaucracy at the secretarial level perhaps knows the importance of trade unionism and its implications. But it must be admitted by all who have to deal with lower formations that the subordinate officers are thoroughly ignorant of the fundamentals of trade unionism. I have been told by many an officer that trade unionism is synonymous with communism and leads to it ultimately, and hence must be avoided. They are usually used to express cheap sentiments such as, for example, support for the congress government since they feel that expression of such sentiments will make them loyal government servants in the eyes of the present government. From what I have seen of this class at close range, I can state as a blunt truth that even if a communist government were to come to power in this country, this class would be the most loyal servants even of that government. And that is but right. We, as government servants, must scrupulously avoid any politics, whatever the government in power may be. Even as Trade unionists, we need not dabble in politics as otherwise a rift in our ranks in inevitable. But to express cheap sentiments about the party in power with an idea of showing ourselves loyal, is something which perhaps only the officialdom can do. What the bureaucracy fails to understand and appreciate is the acceptance by Pandit Nehru of the Presidentship of the Association. Their unexpressed feelings are best expressed in another connection by a Madras legislator, who in resigning from the Congress party recently, informed the public that he feared the present policy of the government would ultimately lead to communism!

"Face" is another important factor which we have to face in our daily contacts with the officialdom, and in facing which we are many a time rather humoured than enraged at the way the bureacrats try to save "face". Very often the Association, through, collective bargaining, get their viewpoint accepted by the Government and then the officialdom feels that their prestige is at stake. In trying to save face on such occasions they usually commit blunders and lose prestige more and more. For instance, when the Kirkee Association in collaboration with the ASWI got the pay scales and the designation of chemists of

Kirkee revised the local officers felt that their prestige was at stake since the Association, through their concerted efforts, had achieved something which the officers not only could not achieve but which they had opposed all along. When the officers learnt that the demand of the Association had been accepted by the government, they were non-plussed and in order to save face they remarked that after all what had been achieved was expected and there was nothing over which the Association need be jubilant. Such a remark was not in keeping with the jubilation felt by the members of the Association and it only helped to create antagonism.

Attempts at breaking the solidarity of Scientific workers are also not lacking on the part of the officialdom; and in this too the typical methods are used. If the local secretary happens to be a Maharashtrian the officialdom will not hesitate to proclaim the Association to be a Maharashtrian-dominated body. If a representation on behalf of the members is put up and if a Maharashtrian officer is involved, then, in the same breath, the officialdom will denounce the Association as an anti-Maharashtrian body. The emptiness of such a propaganda is easily understood even by the meanest brain. If this weapon of provincialism fails, there is the weapon of communism with which the officialdom will attack us. We are told that the World Federation is a communist body dominated by Professors Joliot-Curie and Bernal whose sympathies with communism are well-known. If our World Federation is communist-dominated the supposedly natural conclusion drawn by the officialdom, is that the ASWI, its branches, Units and affiliated bodies must all be communist-sponsored. The sooner this obsession of communism is removed from the minds of the bureaucracy the better for all. It is perhaps this very obsession of communism that helps the spread of Communism in this country.

Transfer of active trade union workers is another well-known weapon in the hands of the lower formations of the bureaucracy. It is born out of a defeatist mentality, smacks of cowardice and creates unrest unnecessarily. The motive behind all such transfers can only be explained by means of the vindictiveness of the officialdom.

When reason fails the bureaucracy would charge the workers with stereotyped terminology of "instigators" "extremists" etc. The day a worker criticises the members of the bureaucracy from the platform of the Association for the ills they perpetuate, he is sure to be dubbed as an instigator. If the worker demands equality with the officialdom even in a social function, he becomes an extremist. If he fights for the great principle of "respect for the common man" then he is told that his brain is perverted. We have been told in plain words that the officialdom shall be nasty if we behave nastily. By our nasty behaviour they mean our approaching the higher authorities concerned with the grievances of our members when they were left unredressed by the local authorities. We are also told we make oblique approaches. If you read through that word it means our approaches through the Centre of the Association. What for then did we affiliate if the Centre is not to be approached? Can anyone debar a child from approaching its mother?

What is the remedy for all these ills of the bureacracy—one may ask. The remedy is simple. Rational approach and not mere empty words. Workers must be taken into confidence when matters do not necessitate their exclusion. The idea of saving face and of false prestige must be given up once for all. Creation of the right type of friendly atmosphere between the bnreacracy and the workers including labour must be the aim. Can the lower formations of the bureaucracy rise to this height? Certainly they can provided the autocratic frame of their mind, which is a legacy of the past and to which they cling with

all their might, is converted into a democratic one wherein inequality, antagonism and vindictiveness are replaced by equality, fraternity and liberty. Then only will the tricolour be the true symbol of the people's aspirations.

Let moral re-armament be introduced into trade unionism but let it not be introduced for the unilateral purposes and with a patronising mind. We are fully prepared to face all problems that face us from a moral viewpoint but let both sides join in it. We are fully aware that class distinction cannot altogether be abolished at this stage. But can we not at least make an attempt to minimise the distinction? And how can that be minimised when the members of the bureaucracy are in such a frame of mind as to question us sarcastically whether they should get the privileges such as supply of firewood, food ration etc. last in their own establishment? And when we give the obvious reply that for such privileges as mentioned above they should certainly come last in their own establishment they call us impertinent.

It is my firm conviction that co-operation from trade unions with the Government which is so essential particularly now, is bound to come forth provided the lower formations of the bureaucracy rise to the occasion. Delhi alone cannot do much. They must first shed their prejudices about trade unionism and make a friendly approach. They must do nothing which will create a split in the ranks of the workers. We are passing through revolutionary times and approach to all problems must be revolutionary. By revolutionary I do not mean either violent or destructive. By revolutionary I mean constructive in a bigger way. The bureaucracy must learn to think democratically and not merely to think but to act democratically. Let them learn to respect the common man. The common man, as Pandit Nehru recently stated in Poona, will put up with any amount of hardships provided he is convinced that there is a noble cause for which he has to suffer. In my opinion there is another occasion when the common man will not mind hardship. And that is when you respect him. That respect is still lacking in bureaucratic circles, particularly the lower ones. In my opinion the lower formations of the bureaucracy are hopelessly mediocre and nothing short of an all out attempt will ever change their frame of mind. There is clearly a time lag and their mental make-up refuses to travel beyond the 15th August level, at which it looks as if it has permanently stabilised.

There is a genuine desire amongst the trade union members and workers to do something in a constructive way. That desire must not be frustrated. The vast energies must be consolidated, and utilised. Let us therfore do our duty by the Nation.

A BRITISH ENGINEER LOOKS AT CZECHOSLOVAK INDUSTRY

Production is a word we hear everywhere in Czechoslovakia, for it has been accepted as the central problem of the nation. Not only because a big increase in production is the only way to raise the standard of living, but because it is only by producing better, faster and more than capitalism that the superiority of the new social order can be firmly established.

THE fact that it is intended by 1953 to increase total industrial output by 57% and productivity by 32% shows that Czechoslovakia means business. These are ambitious goals, so as an engineer I am very much interested in the methods which are being adopted in order to reach them.

From a technical angle their plans are impressive, for the whole industrial structure of the country is being changed and remodelled. In all sectors—mechanisation, research, planning, training, trade—they are not missing atrick.

But I am not so much interested in technique as far as Czechoslovakia is concerned. Modern technique is much the same the world over because the basic principles have been established for some time; any differences are due to variations in application.

My interest lies in the social changes that have taken place within Czechoslovak industry. Engineers admit that one of their biggest problems now-a-days is the human element in production. This awareness is reflected in the rapid growth of personnel management, and the discussion around questions of morale, incentives, joint consultation, suggestion schemes, and so on.

Czechoslovak industry raises three questions in my mind. How does it solve the problem that to give satisfaction work must fill the economic, psychological, and social needs of the workers? How does it resolve the dilemma of the technician that the more he increases technical efficiency the more he divorces the worker from his work and therefore from obtaining any satisfaction from it. How have the political changes affected the position of management in industry?

Industry cannot as yet fill the full economic needs of the workers because production has not yet sufficiently increased. But it does fill one of their most important needs, that of security. They are guaranteed full employment, and a generous national insurance supports them in case of sickness, accident or old age.

The psycholcgical and social needs are met by the fact that every worker is made fully aware of the policies and objectives of his industry, and can see exactly how he and his work-unit fit into the broad plan. He has full say in the day-to-day administration of the plant and has various means of making his criticisms heard, and he has every opportunity for making some contribution of his own.

The success of the 5 year Plan depends upon each worker; feeling that he is participating in it. This is done in two ways. Firstly, by the worker taking part in the actual

construction of the plan through detailed discussions on the factory floor before the Plan is finalized. At this stage the workers often put forward counterplans as they don't think the proposals draw out the full potentialities of their factory. Secondly, final plan is broken down until each worker knows exactly what is his particular task.

The Trade Unions also play a major role in the fulfilment of the Plan, for they are the main medium for disclosing hidden reserves of labour, material, and equipment. They work through the Work Councils, where they sit on terms of equality with the Management. The Councils have the right to call for any information from the Management or to see any records, but they cannot interfere with managerial authority. In case of deadlock appeal must be made to a higher body. In actual practise this rarely happens as both parties desire fullest co-operation so as to achieve their common aim of increasing production. And the Works Councils can help Management a lot by reducing losses due to absenteeism and labour turnover, and by developing a high working morale and self-discipline amongst the workers.

The scope of their activities is shown by the fact that over 5,000 Works Councils have been established in all factories with more than 20 employees. Their constitution and activities have been carefully defined in special regulations. They are elected by secret ballot from direct nominations from among all the factory workers.

Factory newspapers are being established on a large scale to provide a place where the rank and file worker can freely express his criticism and put forward his ideas. This provides a medium which is more flexible and more adapted to discussion than trade union machinery. The new wage structure developed by the Trade Unions themselves, now gives a sound financial incentive as every job is paid at its true worth. It provides a firm basis for the payment-by-result schemes which are being introduced to stimulate output. The full benefit is being obtained from those because the target is only fixed when all parties are satisfied that it is just, and after it is fixed it is guaranteed for a fixed period. The worker can then work flat out without any fear of rate cutting, and the harder he works the more he gets because payment increases in a greater proportion in relation to output.

The highest form of identification with the Plan, of course is socialist emulation. At this stage the workers have no reserves about increasing production, and every effort is made to develop new methods of work, cut costs, and pass their ideas onto their fellow workers. This is carried to a higher stage when whole factories engage in socialist competition. The extent to which this has grown is shown by the fact that over 1,600 workers are participating in this activity.

After some confusion the position of management in industry has been clarified by the adoption of the principle of individual authority and responsibility. Industry has been reorganised to facilitate this, the national corporations being set up as independent units with wide powers delegated to the Director to enable him to directly control production. It has been laid down that in the individual factories the only person who can give orders is the Factory Manager. It has been stressed that the Foreman is a key man in production and must have sufficient authority to enable him to do his job properly. Workers must cease to regard him as their enemy. (Certainly a revolution in industrial thought here).

It is obvious that such far-reaching changes in the relation between workers and management call for considerable mutual adjustment. It requires high personal qualities and social insight on the part of management and a reversal of the traditional attitudes of the workers. Both sides are naturally having some difficulty in making the adjustment but the struggle for the 5-Year Plan is developing new people and

a new outlook. The interesting thing to an engineer is that it is also making the application of the principles of scientific management compatible with the full democratic participation of the workers in the running of industry.

JACK HUTSON.

Czechoslovak Life, October 1, 1949 No. 19 Vol. iv; p. 10-11.

HOW TO KILL AN ORGANIZATION

Reproduced from the Canadian Journal of Pharmacy, March 1, 1948.

Get sore if you are not appointed on a Committee, but if you are, do not attend Committee meetings.

If you are asked by the Chairman to give your opinion regarding some important matters, tell him you have nothing to say. After the meeting, tell everyone how things ought to be.

Do nothing more than is absolutely necessary; but when other members roll up their sleeves and willingly, and unselfishly use their ability to help matters along, howl that the organisation is run by a clique.

Hold back your dues as long as possible or don't pay at all.

Don't bother about getting new members. Let the Secretary do it.

Don't ask for a ticket until all are sold or distributed. Then swear you have been cheated out of yours.

If asked to sit at the Speakers' table, modestly refuse. If you are not asked resign from the Association.

Don't tell the organisation how it can help you; but if it does not help you, resign.

If you reive service without joining, don't think of joining.

If the Association does not correct abuses in your neighbour's business, howl that nothing is done. If it calls attention to abuses in your own, resign from the Association.

Keep your eyes open for something wrong and when you find it, resign.

At every opportunity threaten to resign and then get your friends too.

When you attend a meeting, vote to do something, and then go home and do the opposite.

Agree with everything said at the meeting and disagree with it outside.

When asked for information, don't give it.

Curse the Association for the incompleteness of its information.

Get all the Association gives you but don't give it anything

When everything else fails, curse the Secretary.

LETTERS TO THE EDITOR

To

THE EDITORS, VIJNAN-KARMEE.

Dear Sirs,

My heartiest congratulations to the VIJNAN KARMEE. May this journal of our Association serve as a beacon to all scientific workers of India.

The scientific research, like those other truth-seeking activities of man, require a free environment, above all, free from fear, petty arbitrariness and tyranny. Factors like frustrations and fear affect every activity of man. From the stand point of science we can say not only that science affects individuals and nations, but that these individuals and nations affect science. Scientific knowledge & research offer the alternatives of improving or degrading social life. Our society is at this moment at the threshold of un-dreamt of mastery of our material environment, for Science, which provides that mastery, is in its golden age. But suitable atmosphere and facilities have to be created to undertake this solemn task.

The current interest in scientific man power has been intensified by the world situation. In our country, co-ordination of scientific work and co-operation between the workers were never felt so keenly as now-a-days.

In the Oct., issue of the journal, many of the long felt grievances of the scientific workers have been precisely pointed out. Unless provincialism, nepotism and favouritism are stamped out, there can be no hope for any porgress in the country. Dr. Zaheer has rightly pointed out that our industrialist magnates have no desire to spend money on research work to improve their products and methods as it is done in the Western countries. I thoroughly agree with all the points so aptly put forth by the Class III staff of the Forest Institute. (It is a pity that the senior staff could not find their way to agree to these points).

I would like to add a few more points in this connection.

Whenever any scientific report is published from any institution, due credit and acknowledgement should be given to different scientific staff, whomever that might concern, for the part played by them. This would give more encouragement and inertia to young workers for better and more skilled work. This is sadly lacking now.

All scientific work are also to be directed only by the people of adequate scientific attainments. All programmes for scientific work once accepted should not be subject to scrutiny by administration and should not also be held up for want of finance.

With all good wishes to the VIJNAN-KARMEE, I remain,

Yours faithfully,

Cambridge A C. SEN.

✚ ✚ ✚

Scientific Progress of India and its implications

Sir,

It is over two years since India has emerged from the bondage of British Political and Economic domination. And for the government of any country wedded to the doctrine of Democratic Socialism and Scientific progress a period of two years of initial freedom is very significant. Nothing short of a vigorous revolutionary change in all aspects of life and particularly the scientific life of the country should be the order of the day. It is commonly accepted that the present day civilization owes its existence to the birth and progress of sciences. Therefore the civilization and the integrated life of a country progresses to the extent to which sciences are developed in it. If this is conceded, no government of a country professing its welfare could afford to neglect the sciences and their development. The scientific progress so far achieved in the country is not only not adequate but dangerously slow.

If one realises the gigantic work and progress which is to be accomplished, we wonder whether any progress has been made at all in this direction on the national front.

The desire for scientific development of a country presupposes the willingness to make available the needful funds for that purpose. When we glance at the amounts some advanced countries provide for the scientific uplift, they look collosal. But when it is realised that the happiness of life depends, at the present time of civilization, on the progress and achievements of sciences, no funds howsoever big they may seem are really too big. There are many institutions in India representing the scientific talent of the country. The department of Scientific and Industrial Research has to take up more responsibility to build up scientific organisations throughout the length and breadth of India. It should in fact function as a gigantic builder of scientific India.

It must be recognised by the Government that without proper scientific development India will lag behind and will become a third rate nation engaged in internecine and fratricidal fights which have a tendency to destroy the infant fabric of the nation.

Any action by the Government or public bodies to foster and develop sciences in our country must be so huge and big as to be capable of being felt by the common man. The sciences must be made to develop ahead of the nation. Any attempt to strangle the scientific development will strangle the nation. This development is all the more significant for us since we are a nation in the making. So long as there is a graduate in any science unemployed in India we are not on the right track. As long as it pays a science graduate to change to a profession other than technical so long we lag behind. The whole of India's scientific manpower must be pooled and pooled rather quickly. This means immense funds but no efforts economic or otherwise are worth sparing if our nation is to develop and prosper. Scientific development must get the top priority of the government's attention. It must be orgnized on a war footing. Any intention to economise in this respect, is bound to hinder its growth.

Our masses are extremely ignorant of any rational basis of life and its living. Superstition and irrational religious breeding for scores of years have fashioned life in India. Any method of living which is scientific, is looked upon with suspicion and fear. Rationalisation of food habits and living must be made to take the place of superstition. The economic position of a common man being too low, the ordinary scientific benefits are beyond his reach to impress him with the desirability of change to the scientific methods. For instance, there was a lot of superstition about fire and firemaking. Probably the inventor of match sticks had dispelled this superstition and rendered more service to humanity than many of the socalled religious and cultural teachers. There is a great responsibility on the shoulder of the Government and the public bodies and institutions to develop sciences and the nation. Will they rise up to the occasion?

We are having too many Committees and Boards and too much thinking and planning. Huge volumes and reports are published from time to time. We are treated in and out of season with a great number of advices about what a common man should and should not do. What we want badly today is not such beneficient advice but action from those who advise us. They must act and act quickly to improve the status of science and the scientific professionals in the country. The scientific man is too down in the economic scales. It is a huge waste to equip a person for sciences in the colleges and universities and throw him in the streets afterwards to try his chances in any other field. More often than not a scientifically trained person finds a place, if at all, in a non-scientific environment.

Again there is at present much talk of culture and its improvement in India. It must be clearly understood that the basis of culture is contentment of the peoples inhabiting India. And contentment is the offspring of good economic standard and an overall improvement of life which is dependent on rapid and wide-spread industrialisation of the country which in turn is the result of scientific development and growth. Therefore it is obvious to the average intelligence that cultural development depends on economic and scientific well-being and thus those who are interested in the growth of culture can ill afford to be indifferent to the growth and progress of sciences and scientists. Enormous funds and gigantic efforts are called for from Government and institutions to develop and foster sciences. Have we got them ?

In order to be constructive, I offer the following suggestions through your journal for consideration of the Government :—

(a) The film production must be immediately nationalised and directed to the propaganda of sciences and their usefulness for the people.

(b) In all colleges, schools and Universities, students should be encouraged to take up science courses.

(c) The science graduates and other qualified persons in sciences should not be neglected after they come out of the educational institutions. As a rule they should get more remuneration than non-technical persons in all corresponding services and cadres.

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ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

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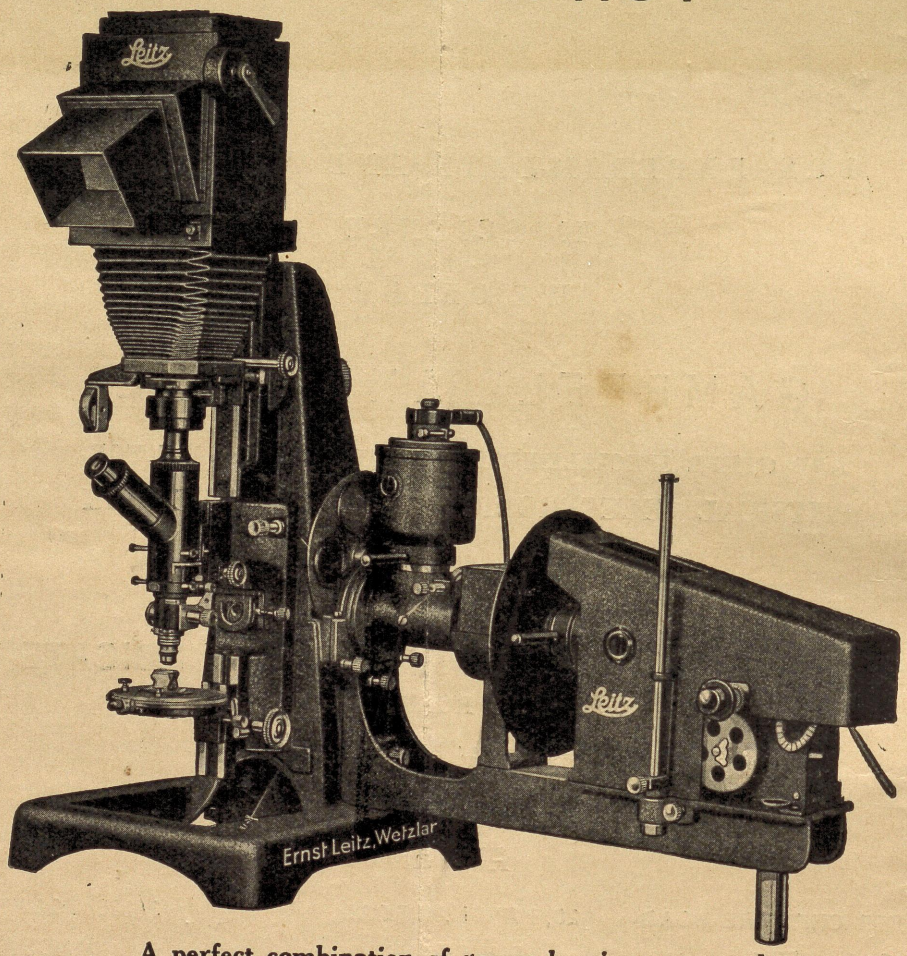

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VIJNAN-KARMEE

VOL. II February, 1950 No. 2

UNEMPLOYMENT AMONG SCIENTIFIC WORKERS

There are signs of an economic recession in India, as in other parts of the world. Since the attainment of freedom, the people of India had expected that a planned economy in the interest of the people would be ushered in, but that hope has not been fulfilled. Not that there has been a lack of plans or blueprints ; in fact there have been many. A multiplicity of committees has considered these schemes, sometimes over and over again. But after a lot of money is spent on the preparation of these projects a vast majority of them seems to remain buried in the files. Very few of them have been acted on. Meanwhile, in the existing industries the gap between production and peoples' needs continues to be enormous. While it is stated that the economic development of India is being inhibited by the lack of technical personnel, such personnel, as is already in the industry or in Government establishments, is being retrenched. There appears to be a serious lack of co-ordination all-round. Meanwhile, the misery of the people grows.

Sometime ago, over a thousand people including some technical personnel of the Tata Chemicals Ltd. were thrown out of employment. The apparent reason was that this firm could not produce soda ash at a price competitive with that of imported soda ash. This again is an example of the lack of co-ordination between import and production policies of the Government. The ASWI took up the matter with the relevant authorities and was assured that this matter was being looked into, that the import duty of soda ash was under the consideration of the Tariff Board and production of soda ash in Tata Chemicals would be enabled to start again.

Lately, a number of trained scientific research workers in an establishment under Government have been given notice. One should have thought that instead of giving notice to these people, some more scientific people should have been brought into research in relation to production and development in the country. But the contrary is happening. Those who could have contributed by scientific research to the starting of new industries or to solving problems of production are apparently not wanted. Similarly, a number of scientific workers who have returned from abroad after training at State expense are still

unemployed or, employed in posts where their specialised qualifications are not needed.

Prices of essential commodities are still very high and beyond the reach of very large sections of the population. While the population increases and needs become more acute, production, instead of being geared to a higher tempo, shows symptoms of decline. On the other hand, in Germany, we are informed, production has already reached 70% of the pre-war level in spite of the great devastation in the industrial area of Germany due to bombing during the war. It is reported that essential machines have been repaired and production is going on at full-blast although in many cases, as in Ludwigshaven, factories are without roofs or walls. The slogan is 'roofs can wait but production cannot'. Reports from Japan also indicate a very rapid revival in production since the end of the war. In the Soviet Union, which suffered the greatest devastation in history, whole cities and factories have been rebuilt at phenomenal speed.

It is with our Government that the initiative must lie. It is they who must *prove* to the people that they are going all-out to implement a planned economy for the people within a stated period of time according to a phased programme. Scientific Workers throughout India have been stressing the necessity of setting up a National Planning Commission right since the advent of freedom. It is only now that the Working Committee of the Indian National Congress has recommended the establishment of such a body but we do not know how soon the Government will establish this organisation. Much depends on the composition of this Commission and on its terms of reference. It is clear that unless the Chairman and Members of the Commission are very progressive in their outlook, and have direct understanding of the planned application of science and technology to co-ordinated economic development in all sectors, nothing much will be achieved. The Government must be clear in its mind about the following :- (i) Is it prepared to plan national economy for the benefit of the masses and not of some groups or sections ? (ii) Is it prepared to root out all obatacles (including sectional interests) to the implementation of planned economy ?

It is high time that the Government made up its mind whether it would allow mass discontent to continue to develop in the country in order to maintain the interests of a small section of the community. It is certain that the Government cannot please both.

The people are often urged to produce or perish. But if people are thrown out of employment how will they produce ? It is obvious that mere slogans or advice from Government to the people will not help matters. It is the Government which must inspire confidence in the people ; it is the Government that is all-out to see that full employment is maintained in the counrry, which cannot be done without the rapid execution of planned economy for collective good. Scientific

Workers would pledge their whole-hearted support to the Government, if they frame and execute such a policy. But such is the debacle in the national development programme of India that even the scientific personnel who are a microscopic number relative to the population, do not find suitable employment in the furtherance of this development. We do not th nk Government can lose any more time. The deepening crisis of poverty and unemployment can be averted only if the Government and its executives by their own example and deeds, show to the people in India that they are determined to put through a planned economy of national development in a given period of time.

PROCEEDINGS OF THE THIRD ANNUAL GENERAL MEETING OF THE ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA HELD ON THE 4TH JANUARY, 1950 IN POONA

Dr. B. C. Guha who presided over the meeting, in his opening address briefly surveyed the scientific workers' movement in India and welcomed, on behalf of the Association, Prof. Fredric Joliot-Curie, the President, and Prof. J. D. Bernal, the Vice-President of the World Federation of Scientific Workers who attended the meeting on invitation.

1. The proceedings of the Second Annual General Meeting held at Allahabad on the 4th January, 1949 were read and confirmed.

2. The Annual Report (printed elsewhere in this issue) for the year 1949 presented by the General Secretary, Mr. C. R. Mitra was read and adopted with the alterations and amendments as appended at the end of the Annual Report.

3. The working Constitution of the Association was adopted with the amendments incorporated in the (1949) in page 6, para 16.6, 16.61, 16.62 and in pages 9 and 10, paras 18.601, to 18.611 and also with those given in paras 4.3 to 4.7 above.

The Audited statement of Accounts of the Association for the year 1948-49 was adopted. (printed elsewhere in this issue).

4. The set of resolutions given in the following pages was adopted unanimously.

(c) Such foreign experts when appointed should not be saddled with administrative duties in order that their scientific and technological talent may be fully utilized in training a band of indigenous workers who can take over the responsibility when the foreign experts leave the country.

(d) In view of the above it would not be desirable to appoint superannuated persons from abroad even though they have an established reputation, or those on the verge of retirement or those who have been cut away from the active pursuit of science for a considerable period.

7. The Association of Scientific Workers of India urges upon the Indian scientists to exert themselves to the utmost to make the best use of their colloboration with the foreign experts whenever such opportunities exist, and also urges that the Government and the Industry provide suitable facilities in this regard.

8. The Association of Scientific Workers of India views with great disappointment the existing conditions of service offered by the Industries to the technical supervisory staff employed at the works; whereas the other workers are offered the protection and benefit of different Acts like the Factories Act, the Industrial Relations Act, etc., the technical supervisory staff are left to the tender mercies of the employer. This Association, therefore, calls upon the Government to extend the benefit of such laws to the technical supervisory staff as well.

9. The Association of Scientific Workers of India is of the opinion that the suspension of the privilege ticket order concession by the Central Government is likely to cause great hardship and deprive their employees particularly the lower paid staff and who live far away from their homes of the small privilege of going home once a year. This Association, therefore, urges upon the Government to take immediate steps to restore the concession at least to all services of class IV and class III.

10. The Association of Scientific Workers of India has noted with concern that *industrialists* retrench their technical supervisory staff on the plea of affecting economies. This is made possible because there are not a definite number of posts for the supervisory staff with duties ear-marked in any industrial concern, with the result that varying numbers of technical staff are kept to man the same concern at different times, thus giving a free hand to the employer to create or abolish a post or posts at his sweet will. The A. S. W. I., therefore, calls upon the Government to appoint an ad-hoc committee consisting of representatives of the employers, employees, A. S. W. I., and the Government to immediately go into the matter of determining the required posts for the technical staff, their qualifications, their remunerations, security of service, etc. for the different industrial concerns.

LETTER TO THE EDITOR

Sir,

A meeting was held on the 12.1.50 at Rammohan Library Hall. The meeting was organised under the auspices of the so-called Joint Committee of Scientific workers to give a reception to Prof. and Madame Joliot Curie and Prof. J. D. Bernal. It should be noted in this connection that this Joint Committee of scientific workers has no connection with the ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA. I was invited to attend the meeting. This meeting began at about 6-30 P.M. The gentleman who rose first to speak on behalf of the reception committee used abusive languages against the Association. I happen to be the Secretary, Eastern Region of the Association of Scientific Workers of India. I thought it my moral responsibility to voice my protest against the unwanted attack made against the Association. I went up to the President of the meeting and requested him to allow me to speak for two minutes after the speeches by the distinguished guests would be over. At that time 5 or 6 of the organisers went up to the President and asked him not to allow me to address the gathering and I was forced to sit down. When the speeches by the distinguished guests were finished, I reminded the President of my request. Suddenly an organiser rose to speak and declared the meeting closed. Then I was about to leave the dais. But suddenly I found myself surrounded by the volunteers of the meeting as indicated by their red badges and was severely assaulted. I got puzzled and cried out "Help! Help!" A few members of the generous public rushed to the spot and the ruffians left me. At the time of assault I found that I lost my folio bag and my spectacles as well as my money bag. I left the spot and rushed into a bus. The ruffians then attacked the bus. Some of them cried out "Here is the 'Dalal' of Congress". Mr. P. B. Sen the president of the meeting came, fortunately, at this critical juncture to the spot and intervened. The ruffians left me and Mr. Sen escorted me all the way.

I am making this statement in order to direct the attention of scientific workers and the public generally to the methods that are adopted by this section of people for their own ends. I would urge on all scientific workers to resist such hooliganism which is seeking to disrupt the unity of scientific workers and damage the scientific workers' movement in India.

Yours etc.

Sushil Kumar Bose,
Secretary
Eastern Region,
Association of Scientific
Workers of India.

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ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

ANNUAL REPORT FOR 1949

1. The Association made steady progress during the year under review. From the response of the scientific workers, it appears that they are becoming increasingly conscious of their rights and also of their social responsibilities. They are anxious to play their part in schemes of national development. Only they are keenly disappointed that many of these schemes are being shelved or slowed down. Apart from its activities in India, the Association came into closer contact with the scientific workers in the various countries through the World Federation of Scientific Workers during the past year.

World Federation of Scientific Workers.

2. The full Report of the First Assembly of the World Federation of Scientific Workers held in 1948, was available to us last year and its main features and important deliberations were given wide publicity through the Official Organ of the Association, the *"Vijnan-Karmee."* The Charter for Scientific Workers, which was adopted in this Assembly is a vital document for the scientific workers, and it is increasingly drawing the attention of various important international organisations as well as of the scientific workers throughout the world. We believe that this Charter for Scientific Workers and Resolution on the Universal Human Rights as adopted by the United Nations Organisation will help the movement for social justice and for the maintenance of peace. Scientific Workers hold a special responsibility to the society for ensuring peace and they must give due attention to this Charter, and create an atmosphere congenial for the progressive forces to thrive. At the same time they will have to create an effective voice throughout the world against the mis-use of science for destructive and anti-social purposes. This is a primary object of the scientific workers' movement. The Association of Scientific Workers of India has always been alive to this responsibility of the scientific workers, and has tried to promote international brotherhood.

3. In 1949 an important discussion was initiated by the World Federation of Scientific Workers on the qualifications and training of 'Technicians' and recently a bulletin entitled 'Qualification des Techniciens De L' Industrie' has been circulated from the Paris Head Quarters of the World Federation and it is now engaging the attention of the different national Associations of Scientific Workers. It is hoped that an agreed standard of training and qualifications for the 'technicians' will be evolved as result of this discussion.

4. During the year under review, the World Federation of Scientific Workers published its Official Journal, *Science and Mankind.* This publication was wellcomed by scientific workers as well as by others. We are subscribing to this journal and we received 25 copies of the Ist issue of the journal

and distributed them to our various Branches. Two Memoirs on Langevi and Rutherford were published in 1948-1949 by the World Federation. This was in pursuance of its policy of holding Inter-national Memorial Meetings and discussions on the lives and work of scientists of international fame. We received a number of copies of these Momoirs and distributed them to our Branches as well as to different important scientific Institutes and Societies in the country.

5. *Science and Mankind* has initiated publication of a regular feature—"Science in the Service of Humanity" with the following items:

(a) the successful application of existing knowledge to solve a particular problem (b) the progress that has been made in research on some problems (c) any considerable changes in the organisation of Science inspired by the desire to gear it more effectively to the raising of the living standard (d) examples of scientific collaboration between two or more countries.

6. Bulletins and publications are being exchanged with our sister organisations in the different parts of the world. Thus during the year under review we have come in closer contact with the Associations in England, Canada Holland, Poland, France, South Africa and New Zealand. Apart from this the Association has been regularly receiving the press notes, bulletins etc. from the various foreign Embassies in New Delhi and matters of scientific interest are being received from the offices of the High Commissioners for U. K. and Australia and the Embassies of the United States of America, Union of Socialist Soviet Republics, France, Czechoslovak Republic and Italy. We have also been receiving the UNESCO Courier and other publications from the offices of the UNESCO at Delhi and Paris.

7. Whenever the Association was invited, social and official functions were attended by us.

Indian National Commission for Co-operation with UNESCO.

8. In March last the Govt. of India in the Ministry of Education, set up the Indian National Commission for co-operation with the UNESCO and our Association was allotted a seat in the Commission. Dr. B. C. Guha, the Vice-President of the Association was nominated by the Central Executive committee to represent the Association. He was subsequently elected to the Constitution Committee and to the Sub-committee for popularisation of Science under the Scientific Sub-Commission. As a collaborating body, we have been following the programme of the Indian National Commission and we have been receiving the UNESCO publications and circulating them whenever necessary. Apart from our publishing important news items on the activities of the UNESCO as well as of the Indian National Commission, we have drawn attention to the Universal Declaration of Human Rights by publishing it in a recent issue of *Vijnan-Karmee*. We propose to take up a concrete programme for the popularisation of science, and possibilities in this regard are being explored, particularly in regard to the publication of popular science pamphlets.

9. The Association has been maintaining contact with the various official and non-official institutions in India and complementary copies of '*Vijnan-Karmee*' are regularly sent to all the important departments of the Central and Provincial Governments as well as Institutes and Societies connected with science and its development. In exchange we have been receiving bulletins and documents of interest from the Department of Scientific Research of the Government of India, Ministry of Education, National Institute of Sciences and many other Government and public institutions.

First Council Meeting of the Association.

10. The first Council Meeting of the Association was held at Allahabad on 3rd January, 1949 with Dr. T. N. Seth in the Chair. Twenty-four delegates from the different Branches attended. The Council adopted a number of resolutions (summary noted below) and recommended them to the General Body for acceptance. The Council resolved that the Memorandum on the working conditions and the pay scales of the scientific workers should be finalised as soon as possible and submitted to the Govt. and other authorities. It approved of and adopted the Annual Report for 1948 and the accounts for the financial year 1947-48 and recommended their acceptance to the General Body. It was decided that the Head Office of the Association would continue to be in Delhi for the year 1949. Dr. Ram Bihari, Head of the Department of Mathematics, Delhi University was appointed Honorary Auditor of the Association.

11. The Council elected the following office-bearers and members to the Central Executive Committee for 1949 :— *President :* Pandit Jawahar Lal Nehru; *Vice President*: Dr. B. C. Guha ; *Treasurer*: Dr. D. V. Karmarkar ; *General Secretaries :* Dr. P. K. Kichlu and Mr. C. R. Mitra ; *Joint Secretary* ; Mr. S. Bhattacharji : *Members* : Dr. A. N. Bose, Dr. S. Banerjee (Calcutta); Dr. T. D. Patel, Maj. General S. S. Sokhey (Bombay) ; Mr. Bharat Bhushan, Mr. S. K. Mohindra (Delhi); Mr. A. C. Sen (Bihar); Mr. Hameedul Hussan (Aligarh); Mr. S. C. Roy (Lucknow); Dr. B. Prasad (Orissa) ; Mr. N. R. Srinivasan (Bangalore) and the eight Branch Secretaries (1949) from Delhi, Calcutta, Bombay, Bangalore, Lucknow; Patna, Raniganj and Naihati.

Second Annual General Meeting.

12. The Second Annual General Meeting of the Association was held at Allahabad on January 4, 1949 with Dr. T. N. Seth in the chair. The Annual Report for the year 1948 presented by the outgoing General Secretary, Dr. B. C. Guha and the Annual Statement of Accounts for the year 1947-48 presented by the Treasurer, Dr. D. V. Karmarkar were adopted in the meeting. The General Body resolved to continue with the registered working Constitution of the Association during 1949 and proposed its final ratification at its next meeting with amendments, if any.

13. A number of resolutions dealing with unemployment, retrenchment and insecurity of scientific workers, and asking for enhanced rates of dearness allowance for the comparatively low paid workers were adopted. The Association urged upon the authorities to stop the practice of keeping scientific workers in temporary jobs for an indefinite period and to grant them all the privileges

during the tenure of temporary services; to assure facilities to them for appearing before competitive interviews for the betterment of prospects. The Association welcomed the formation of the Department of Scientific Research under the Prime Minister, and urged upon the Council of Scientific and Industrial Research to expedite the working of the National Laboratories and pleaded for the State ownership of Research Endowment Funds. While pointing out malpractices in appointments and promotions on grounds other than merit and sometimes even on racial and communal considerations, the latter happening in some industries, the Association asked for their rectification. It protested against the practice of re-employment of superannuated persons by the Governmet; it urged upon the Government for effecting better co-ordination in employment of scientific workers in public service as well as in industry; it further urged upon the Government the need of rapid industrial development in the country and of pursuing a progressive policy of nationalization.

Central Executive Committee.

14. The Central Executive Committee (CEC) held five meetings during the year. The Fifth Meeting of the Central Executive Committee was held at Allahabad on the 3rd January, 1949 with Dr. T. N. Seth in the chair. The Committee in this meeting discussed the various recommendations to be made to the Council and these recommendations were subsequently accepted by Council and the General Body. The Committee while recommending the names of the Office-bearers and Members of the incoming CEC kept in view the need of regional representation for the expansion of the activities of the Association, and proportional representation on the basis of membership strength was not thought desirable in the developmental stage of the Association.

15. The Sixth Meeting of the Central Executive Committee was held at Allahabad on the 5th January, 1949 with Dr. B. C. Guha in the Chair. In this meeting the Committee discussed the programme of activities of the Association for the year 1949 and recommended to the various Branches, the organisation of lectures, symposia, exhibitions etc., in order to popularise science. It requested the Branches to take up studies of the economic, health and nutritional conditions of particular sections of the population in their respective areas and also to conduct classes for both general and scientific education of the under-privileged sections of the community at various places. The Committee further requested the Branches to prepare a register of unemployed scientific workers and make every possible effort to get them employed. In this connection, the Committee suggested that the Branch Secretaries might meet the Officers of the local Employment Exchanges, and also circulate a list of the unemployed personnel collected by them to the Members of the Branch and send a copy of it to the Head Office for exploring further avenues for employment. The Committee also recommended the preparation of factual reports of the living and working conditions of the scientific workers in special areas or in special establishments which might be published on behalf of the Association. In this meeting the Committee decided to start a register of scientific personnel and adopted the form prepared for the purpose by the National Institute of Sciences in India with the following additional items which are of importance to the Association:

(i) Name of the employer

(ii) Designation
(iii) Salary and pay scale
(iv) Security of tenure
(v) Whether entitled to pension or provident fund
(vi) Leave, rest and recreation facilities
(vii) Conditions of hygiene at the working place
(viii) Medical aid available or not
(ix) Are journals and other publications available?
(x) Are facilities for work namely equipment etc. satisfactory?
(xi) Other benefits, if any.
(xii) Other disabilities, if any.

15.1 In this meeting the CEC decided to issue a journal, or newsletter or bulletin of the Association under the name *Vijnan-Karmee* which would be available free to the members and would be priced for non-members.

16. The seventh Meeting of the Central Executive Committee was held on 6th April, 1949 in New Delhi with Dr. B. C. Guha in the Chair. The formation of the Dehra Dun Branch of the Association, through the efforts of the Ordnance Scientific Workers, was approved. In consideration of the first bulletin which was being issued by the Head Office and a proof copy of which was placed before the CEC the Committee recommended that it should be issued as the First Number of *Vijnan-Karmee*, the Official Organ of the Association with an introductory Editorial. The Committee elected the General Secretaries to be the *ex-officio* Editors of *Vijnan-Karmee* and authorised them to give declaration for publication and elected the following members to constitute the Editorial Advisory Board :

16.1 Dr. B. C. Guha (Calcutta); Dr D. V. Karmarkar (Delhi); Dr. T. N. Seth (Patna); Maj. General S. S. Sokhey (Bombay); Dr. B. Sanjiva Rao (Bangalore) Mr. S. C. Roy (Lucknow); and Mr. S. K. Mohindra (Delhi). The Committee requested each Branch to elect an Editorial Correspondent for *Vijnan-Karmee* It was further decided that the journal should be published monthly. Its price was tentatively fixed at four annas per copy for the non-members.

16.2 In this meeting the CEC while discussing the question of affiliating other bodies with kindred objects, were of the opinion that the article 16 of the Working Constitution should be operative and that it was not necessary to alter the Constitution of the Association so as to give it a federal character for the purpose.

16.3 The CEC agreed to recommend the affiliation of the Association of Scientific Workers, Ordnance Establishments, Kirkee with the Association and authorised the General Secretaries to settle the terms of affiliation with the Executive Committee of the body in question.

16.4 The CEC nominated Dr. B. C. Guha to the Indian National Commission to represent the Association.

16.5 The Committee accepted the Charter for Scientific Workers as adopted by the World Federation of Scientific Workers.

16.6 In compliance with the amendments to the Indian Trade Union Act for compulsory recognition, the following amendments to the Constitution were adopted by the CEC as Articles: 42 A and 42 B after Article 42 in the Constitution, and the CEC recommended their acceptance to the Council and General Body.

16.61 42 A: In case of a trade dispute between the Member/Unit/Branch/Region/Central Executive Committee of the Association and an employer or employers of Scientific Workers, before a strike is resorted to by the Association or its constituent Region/Branch/Unit/Members, necessary steps shall be taken to follow all the provisions relating to the settlement of a trade dispute laid down in the Indian Trade Union Act 1926 as well as the Industrial Disputes Act, 1947 and/or amendments thereof for the time being in force.

16.62 42 B: Strike issues shall be decided, when asked for by the Central Executive Committee, by secret ballot vote of the members concerned in the Unit/Branch/Region/Association.

16.7 The CEC authorised Dr. B.C. Guha to finally edit the Memorandum on pay-scales, etc., of scientific workers, prepared initially by the Delhi Branch of the Association. In this meeting the C.E.C. resolved to relieve the Eastern Regional Committe of the Association of the routine administration of the Branches concerned and vested the said Committee with the duties of organising new Branches in the Region and also agreed to sanction a subvention to the Regional Committee from the Central Office whenever necessary and asked for.

16.8 The Central Executive Committee viewed with deep concern the refusal of *visa* to the Secretary-General of the World Federation of Scientific Workers and other Scientists for entry into the United States of America for attending the Peace Conference, sponsored by Dr. Harlow Shapley, President of the American Associatien for the Advancement of Science.

16.9 The CEC in this meeting considered the various reports and suggestions received from the different Branches of the Association and from various Scientific Institutions in the country in regard to the question of 'research atmosphere' and progress of science. A Sub-committee consisting of Dr. B. C. Guha, Dr. D.V. Karmarkar, Dr. P.K. Kichlu and Mr. C.R. Mitra was constituted to collect further data and views, and prepare a comprehensive report to to be forwarded to the relevant authorities for consideration.

16.91 The CEC in pursuing the popularisation of science programme of the Association requested the authorities of various scientific institutions and Universities to extend their cooperation to the Association and its constituent Units and Branches for organising lectures, demonstrations, film shows etc.

17. The 8th Meeting of the Central Executive Committee was held in New Delhi on 22nd July, 1949. Activities of the various Branches of the Association were reviewed by the Committee and in regard to revitalisation of the Bangalore Branch, Mr. N. R. Srinivasan, a member of the CEC was requested to take steps in the matter and the Committee further decided to approach the Government of India in the Ministry of Education as well as the Government of Mysore for recognition of the Association and for extending facilities to the Bangalore Branch and its constituent Units for their proper functioning.

17.1 The Committee approved of the formation of the Poona Branch of the Association.

17.2 The Committee ratified the following terms of affiliation agreed upon by the General Secretary and the Association of Scientific Workers, Ordnance Establishments, Kirkee :

17.21 The words "affiliated to ASWI" shall be suffixed to the name of the affiliated Association.

17.22 In pursuance of the common objectives, the affiliated body will work as a Unit of the Poona Branch of the ASWI.

17.23 Membership qualification clauses and the rates of subscription etc. laid down in the constitution of the affiliated Association shall be so amended as to conform to the corresponding rules of the ASWI.

17.24 The affiliated body shall, whenever and if necessary, approach the CEC of the ASWI in case of deputation, negotiation etc. with the Ministry of Defence and/or any such authorities as may be mutually agreed upon for settlement of any trade dispute, in which case full powers for the settlement of Trade Dispute shall be vested in the C.E.C. of the ASWI.

17.25 The number of representative (s) of the affiliated body in any elected body of the ASWI shall be according to and in proportion to the *pro rata* subscription paid by the affiliated body to the ASWI.

17.26 The affiliated body shall pay an annual affiliation fee of Rs.10/-only to the ASWI together with an annual contribution of 25% of the total subscription collected by the affiliated body during the financial year.

17.3 The position in regard to publication of *Vijnan-Karmee* was reviewed and the following decisions were taken:-

17.31 The number of pages in each issue should not normally exceed 16 pages.

17.32 Rates of advertisements proposed by the General Secretaries were approved.

17.33 Branches should organise the sale of *Vijnan-Karmee* through stall-holders and each member of the Association should endeavour to sell at least 2 copies.

17.34 The Central Office and the Branches should re-organise efforts for collecting donations for the publication fund.

17.35 The financial position should be reviewed from time to time and, if necessary, the decision of free distribution of *Vijnan-Karmee* to the members should be re-considered and the question of introducing a subscription rate for members should be taken up.

17.4 The CEC elected Mr. I. K. Kacker to the Editorial Advisory Board of *Vijnan-Karmee* in place of Dr. B. Sanjiva Rao who was unable to accept the office.

17.5 The Editors were empowered by the CEC to charge for the advertisement insertions for 'situation vacant' and 'situation wanted' whenever necessary.

17.6 In considerarion of a letter from the Tata Chemicals Kamghar Sangh, the CEC viewed with deep concern the situation in the industry resulting in the retrenchment of 1500 workers and cessation of production of 90 tons of soda ash per day and urged upon the Government to look into the matter.

17.7 In consideration of various difficulties of the scientific workers the CEC impressed the following points upon the various authorities, particularly the Government :—

17.71 The difficulties of the employees kept for indefinite periods on a temporary basis.

17.72 The difficulty created by the refusal of the various authorities to allow the temporary scientific workers under their employ to apply for permanent and better jobs elsewhere.

17.73 The hardships and injustice caused to the temporary workers when they go on deputation for scientific duties allotted by the Government and are not given facilities available to the permanent staff. Such scientific workers should be entitled to full pay for family subsistence in addition to deputation allowance; particularly when a worker is sent abroad.

18 The Ninth Meeting of the Central Executive Committee of the Association was held in New Delhi on 25th Nov., 1949.

18.1 The Committee approved of the Malakpur (East Punjab) Unit of the Association functioning under the Head Office.

18.2 In consideration of a communication from the Government of India in the Ministry of Defence, the Central Executive Committee decided that the Government of India should be informed that whenever a post for which the Government requires a qualified scientific worker and which is held by a qualified scientific worker, the incumbent thereof, should be declared eligible for membership of the Association whether he is engaged in a Laboratory, Factory or in any other Establishment or even in Administration involving technical work. The committee further pointed out to the Government that in scientific and technical work, a team spirit is always necessary in order to get the best results, and therefore, segregation of the gazetted and non-gazetted staff particularly in

scientific establishments would not appear desirable, and that the apprehension of indiscipline among such scientific and technical staff on account of membership of a common organisation would not be justified.

18.3 In this meeting the CEC adopted a set of standing orders for the Council Meeting and recommended their acceptance to the Council; the CEC also adopted the audited statement of accounts for the year 1948-49 and recommended its acceptance to the Council and the Third Annual General Meeting of the Association.

18.4 In appreciation of his interest in the affairs of the Association from its very foundation, the CEC recommended to the Council that the Foundation-President of the Association, Pandit Jawaharlal Nehru be elected as the first Honorary Member of the Association.

18.5 The C. E. C. admitted 39 delegates from the various Branches of the Association to constitute the Council for the year 1950. (Five seats of delegates from Raniganj and Patna Branches were still vacant). The seats of delegates in the Council from the different Branches are as follows:-

Delhi 9; Calcutta 9; Bombay 6; Poona 5; Dehradun 3; Patna 3; Raniganj 2; Lucknow 2; Naihati 2; General Branch (unattached members) 2; and Bangalore 1.

18.6 The CEC recommended the following amendments to the Working Constitution for acceptance by the Council and the General Body in the Third Annual General Meeting:-

18.601 Rule 4; insert "after Associate members", "Affiliate members".

18.602 Rule 6 line 3; insert after "or she is", "at least a Matriculate and is"

18.603 After Rule 6 and before rule 7 insert;

"Rule 6 A" In order to qualify as Affiliate Members applicants must be members of an organisation with which the Association has entered into an agreement providing for the collective affiliation or the whole or part of its membership to the Association vide Rule 16. Such organisations shall be known as Affiliated Organisations for the purpose of these rules".

18.604 Rule 7 line 6 and 7; before "Vice President" insert "Honorary".

18.605 Rule 9, para 2 line 1; after "admission" insert "by the Central Executive Committee."

18.606 Rule 16 line 3; delete "Council" and insert "Central Executive Committee subject to ratification by the Council".

18.607 Rule 17, para 2 lines 2 and 3; delete "through the Regional Executive Committee".

18.608 Rule 30; add "Branches shall be formed with the consent of the Central Executive Committee".

18.609 After Rule 30 and before Rule 31; insert;
"Rule 30 A" Members/Units who for any reason cannot be allocated to a Branch shall be included in a General Branch to be administered from the Head Office. The General Branch shall be exempt from Rules 31-41".

18.610 After Rule 45; add new paragraph; "Outgoing Central Executive Committee office-bearers and the outgoing Branch Secretaries shall be *ex-officio* delegates to the Council".

18.611 Rule 63 line 4 after "President" add 'Vice-President', and delete "Honorary" before "Treasurer", "General Secretary" and "Joint Secretary"

18.7 The CEC recommended a number of resolutions (copy enclosed) for acceptance by the Council and the Third Annual General Meeting.

18.8 The CEC recommended the following to the Council for acceptance: –

18.81 The Head Office of the Associaion be shifted from Delhi to Poona.

18.82 The CEC for 1950 be constituted of 25 members, distributed as in sub-para 4.

18.83 That the newly elected Branch Secretaries for 1950 from Naihati, Calcutta, Raniganj, Patna, Lucknow, Delhi, Bombay, Poona, Dehradun and Bangalore be *ex-officio* members of the CEC for 1950.

18.84 That the following office-bearers and members for the CEC be nominated for 1950.

President : Major-General S. S. Sokhey
VicePresident : Dr. B. C. Guha
General Secretaries : Mr. C. R. Mitra ; Dr. D. V. Karmarkar
Joint Secretary : Mr L. Y. Sane
Treasurer : Mr. S. Bhattacharji
Members : Dr. S. K. Bose (Calcutta); Mr. M. L. Aggarwal (Delhi); Mr. H. C. Srivastava (Kanpur) ; Mr. V. R. Joshi (Poona) ; Mr. A. Hariharan (Madras) ; Dr. H. L. Uppal (East Punjab) ; Mr. D. R. Sukhtankar (Bombay) ; Mr. I K. Kacker (Hyderabad) ; Mr. S. K. Mohindra (Bihar).

Head Office

19 The organisational activities of the Association were pursued as far as possible within the limited scope permitted by available finance. During the year under review, the Association has developed its strength of membership almost by cent per cent, from nearly 700 at the beginning of 1949 to nearly 1400 members on the rolls at the end of the year. Centres of activities of the Association have also been increased and three more Branches have been constituted during the year, apart from the Unit in East Punjab and the nuclei of the Association in Kanpur, Hyderabad, Madras and other places. It is expected that these nuclei will soon develop into the Branches of the Association. A number of organisations approached the Central Executive Committee for

affiliation with the Association. The CEC did not encourage the affiliation of various bodies which are composed of fully qualified scientific workers and could function as component parts of the Association and thus requested the M. S. M. Railway Chemists Association and the Scientific Society of Abdullahpur (East Punjab) to come into the Association as Units and strengthen it. On the other hand in consideration of the heterogeneous composition of its membership distributed in various parts of the country the Central P.W.D. Technical Employees Association at Delhi was not encouraged by the CEC for affiliating itself with the Association but approved of the suggestion of closer collaboration of the Delhi Branch within the scope of the Constitution of the Association, with the said organisation. As desired and suggested by the Government of India and as it was thought expedient, the CEC agreed to the affiliation of the Association of Scientific Workers, Ordnance Establishments, Kirkee. The terms of affiliation of this body as stated above ensure close collaboration in common fields of activities and at the same time the financial commitment of the affiliated body to the Association brings the same benefit to the Association as is derived from its constituent Branches and Units. The affiliation of the Kirkee Association has given an impetus to the integration of the various forces of the scientific workers' movement in the country. Similar organisations are now being closely knit with our Association. During the year under review, Associations of Ordnance Scientific Workers have been formed in Aravankadu (South India) and Khamaria (Central Provinces) and their affiliation with the ASWI is expected to be effected within a short time. Attempts are being made at close collaboration with the organised scientific workers in the Ordnance Establishments in Kanpur and Calcutta. In this connection it may be mentioned that a deputation on behalf of the Association waited on the Ministry of Defence at the instance of the Kirkee Association, even prior to the affiliation of the latter body, and also on subsequent occasions, and it is heartening to state that the Government discussed with the delegation the various grievances of the Ordnance Scientific Workers with a rational outlook, and a number of grievances were redressed giving financial benefit particularly to the comparatively low paid scientific workers in the Ordnance Establishments. The other grievances which were redressed, include re-designation of certain sections of scientific workers with a view to unification of cadres, grant of allowances and revision and unification of certain rules granting privileges to the scientific workers. This activity of the Association helped to create confidence in our co-workers in different fields of activities and brought them closer on a common platform.

20 During the year a number of individual and collective cases of grievances of members of the Association were taken up with the various authorities in the Government of India, Government of U. P., Government of Mysore, Government of Bihar as well as in industry.

21 Two memoranda from the scientific workers in research organisations are now under active consideration of the Central Executive Committee.

22 Apart from the *de facto* recognition of the Association by the various Ministries of the Central Government, and employers of scientific workers, the Association was formally recognised by the Government of the United Provinces.

Although our request for recognition of the Association under the purview of the Indian Trade Union Act is still under consideration of the various authorities, we have not met with any great difficulty in taking up cases of grievances of scientific workers with the authorities concerned, whenever necessary.

Vijnan-Karmee

23 The publication of *Vijnan-Karmee*, the Official Organ of the Association was started in June, 1949 and the monthly issues have been published regularly. Due to limited financial resources of the Association, *Vijnan-Karmee* could not have the desired size. We hope that it has started serving the purpose of bringing the scientific workers together, and focussing the attention of the public in general and of scientific workers in particular on the problem of the application of science and the scientific method for the welfare of the community. It acts as a medium for discussion of different problems facing the scientific workers in India and helps the growth of trade unionism amongst this important section of workers in Society. We hope that *Vijnan-Karmee* will be self-supporting in regard to its finances from the revenues accruing from advertisements, and that it will continue to serve the purpose of the Association. It will take its due share in creating an effective voice of the scientific workers in India. We urge upon our co-workers to take greater interest in helping *Vijnan-Karmee* to become a force among the scientific workers of India.

Finance

24. During the last financial year, 1948-49, the Head Office collected a total amount of nearly Rs. 2000/- and the expenses incurred were approximately Rs. 1500/-. The main source of revenue at the Centre was its share in the subscriptions and enrolment fees collected by the Branches. As the activities of the Association went on increasing, difficulties in regard to finance were being felt, not only at the Centre but also in the Branches. In view of the meagre revenue, the undertaking of publishing a monthly journal was rather ambitious but we are glad that an effort to collect funds by accepting suitable advertisements in *Vijnan-Karmee* proved successful and the journal at the present stage is self supporting. We hope, if the efforts are strengthened, financial difficulties will not stand in the way of the progress of *Vijnan-Karmee*. Still we need more voluntary work and willing co-operation of the individual members. Expenses of running the office as well as for the organisational activities and socio- scientific programmes of the Association have been increasing. The growth of the organisation has naturally entailed more and more expenses and the sources of revenue as indicated above are not sufficient to keep up with the progress of the organisation and the expansion of its activities. Thus it is necessary that donations are raised particularly to carry on the socio-scientific programme of organising lectures, film shows and other allied activities. We would like to draw your attention at this stage to an important aspect of the Association's functions and that is the creation of a Fund for helping the members who are in distress and in need. We hope members will give due consideration to it and help the Association to build up a fund for the purpose.

25 We do not have any accommodation and equipment for the office of the Association and work was carried on by courtesy of the National Institute

of Sciences of India and the University of Delhi who very kindly provided us with a small accommodation. The amount of office work necessitates the employment of a full time typist-clerk but this could not be provided as yet in view of the state of our finances.

26 The collection of data for the National Register of scientific and technical workers could not be undertaken primarily due to financial reasons, and the same was the case with the collection of statistics regarding the working conditions of scientific workers in different institutions and establishments. For the popularisation of science programme, we have been feeling that preparation and circulation of pamphlets on popular sciences in Indian languages would be fruitful ; but this scheme would entail a comparatively large financial commitment by the Association. Possibilities are being explored to carry through this scheme in collaboration with the Government of India in the Ministry of Education as well as with the UNESCO Science Co-operation Office, and we hope that the Association, as a Member Body of the Indian National Commission and as an organisation of the rank and file scientific workers in India, will be in a position to undertake such a scheme.

27 In view of the potentialities of the scientific workers' movement in India and the wide appreciation of the activities of the Association during its short span of life, we appeal to members to give full consideration to the question of finances and to extend their support so that the activities of the Association can be further broadened as well as intensified.

Branches

28 The Branches at Calcutta, Delhi, Bombay, Bangalore, Lucknow, Patna and Raniganj have been carrying on the activities of the Association. Calcutta and Delhi Branches have considerably grown in strength during the year. Three new Branches were constituted during the year, at Naihati, Dehra Dun and Poona, as well as a number of active centres of the Association were organized in East Punjab, Kanpur, Madras, Hyderabad, Aravankadu and Khamaria. During the year under review, nearly 100 unattached members of the Association spread throughout the country were brought together in a General Branch maintained by the Head Quarters.

Delhi Branch

29 Delhi Branch has been actively pursuing the organisational activities and there are 347 members on its rolls at the end of 1949 as against 218 at the end of 1948. Apart from re-organising and strengthening the existing Units, two more Units have been constituted in the Delhi Cloth Mills (Textile), and in the Central College of Agriculture. The strongest Unit of the Association in Delhi, the CSIR Unit, was split during the year when its members were transferred to National Chemical Laboratory, Poona, National Physical Laboratory, New Delhi, and other National Laboratories under the Council of Scientific and Industrial Research.

29.1 During the year, six shows of popular scientific films were organised by the Branch in co-operation with the Government of India in the Ministry of

Education, Ministry of Information and Broadcasting, British Information Services, United States Information Services and the Czechoslovak Embassy. The Branch organised two popular science lectures, one on 'Food and Population' by Dr. B. C. Guha, and the other on 'Science and Scientists in America' by Mr. John M. Steeves, first Secretary and Chief Public Affairs Officer of the United States Embassy in New Delh.

29.2. The Branch Executive Committee was elected in February 1949 with Dr. K. Mitra as President and Mr. A. C. De as Secretary and the Committee helds nine meetings during the year. The Committee took up an umber of caes of grievances of scientific workers forwarded by the different Units in the Branch, and a number of these cases are still being pursued with the various authorities in the Government of India as well as in Industry.

29.3 The Branch Executive Committee prepared a note on 'research atmosphere' in India and it initiated a discussion on the subject when it was published in *Vijnan-Karmee* in September, 1949.

29.4 The Branch constituted a permanent Sub-Committee to maintain a register of unemployed scientific workers, and to make efforts to find suitable employment for them.

29.5 The General Body of the Branch met thrice during the year and in its last meeting adopted a number of resolutions and recommended them for adoption at the Third Annual General Meeting.

Calcutta Branch

30 The Calcutta Branch has 377 members on its rolls and during the year a new Unit was constituted at Bose Research Institute and another was in the formative stage in Dum Dum Air Port. The Branch Executive Committee for 1949 was constituted with Dr. P. C. Mahanti as President and Mr. M. Chakrabarti as Secretary and the Committee held seven meetings during the year and discussed organisational and other problems.

30.1 A Press Conference was organised by the Branch when Dr. B. C. Guha spoke on "Scientific Workers' Movement in India".

30.2 A Sub-committee was constituted in the Branch for propagating science and scientific knowledge and the committee organised a symposium on 'Food and Population' in collaboration with the Royal Asiatic Society of Bengal and a lecture on 'Freedom in Science'. A popular science film show was also arranged by the Branch.

30.3 The Branch Executive dealt with two cases of grievances of scientific workers during the year.

30.4 A resolution concerning the prevailing economic condition in the country was adopted by the Branch and forwarded to the CEC for recommendation to the Council and the General Body.

Poona Branch

31 The Poona Branch came into existence at the end of April, 1949 through efforts of the Ordnance Scientific Workers at Kirkee, and after the Kirkee Association had been affiliated with the ASWI.

31.1 The Branch was inaugurated by Mr. C. R. Mitra when he visited Poona at the invitation of the Kirkee Association and finalised the terms of their affiliation.

31.2 The Branch Executive Committee was constituted with Dr. M. Damodaran as President and Mr. P. S. R. Sharma as Secretary. At the end of the year the Branch embraces a total membership of 300 including the two hundred members of the affiliated body and it functions through seven Units at the Ordnance Establishments, Public Health and Public Works Department, National Chemical Laboratory, Meteorological Office, Agricultural College, Central Water Power Irrigation and Navigation Research Station and the Associated Research Laboratories. The Branch Executive Committee held three meetings and initiated a commendable programme of work which includes organisation of German and French classes for the scientific workers, popular scientific film shows and lectures. Mr. Gulzari Lal Nanda, Minister for Labour, Government of Bombay inaugurated the popular lecture series of the Branch and spoke on 'trade unionism'. Independence day celebration was organised by the Branch when Mr. B. B. Chaudhry, Chief Inspector of Military Explosives, Kirkee delivered a lecture on 'Science and the Scientific Workers'. The Branch Executive took up a case of grievances and are pursuing it with the Ministry of Health, Government of Bombay.

31.3 Recently in the middle of December, the Branch organised a reception to Professor James W. McBain, F. R. S., the Director of the National Chemical Laboratory of India, till recently the Professor of Chemistry, Stanford University, California, and presented him a welcome address.

31.4 The Branch has arranged for the accommodation of the Council delegates as well as for the Camp Head Office, during the Session and we congratulate the Branch on their enthusiastic efforts in assuring comforts to the delegates and for doing every little bit to make our Annual gathering a success.

Raniganj Branch

32 This Branch has been constituted in the Western Zone of the industrial area of West Bengal and during the year there was an increase in membership in the branch and there are at present 64 members on the rolls. The Branch Executive Committee was constituted with Mr. S. C. Sen Gupta as President and Mr. J. R. Sen as Secretary. In the Ist General Body Meeting of the Branch in March, 1949, Dr. B. C. Guha Vice-President of the Association was present and delivered a speech on "Damodar Valley Project". On this occassion, Mr. A. I. Flemming, Manager of the Bengal Paper Mills, spoke on 'Atomic age' and another interesting lecture on 'Minerals present in the Damodar Valley' was delivered by Mr. Khedkar.

32.1 The Branch organised a number of meetings to discuss subjects of technological importance and the papers entitled 'Cultivation of Sabai Grass in Raniganj', 'Coal Mines in India', 'Standards of measurement' and qualities of springs and 'Paper Industry in India' were read in the various meetings of the Branch by Messrs L.S. Bhandari, Barrowman, Davice, and J. R. Sen respectively.

32.2 The Branch is giving due attention to the constructive programme of the Association and has provided for technological training for comparatively low skilled workers.

Lucknow Branch

33 The Lucknow Branch has 65 members on the rolls and the Branch Executive committee for the year 1949 was constituted with Dr. K. N. Bahl as the President and Mr. P. M. Bhargava as the Secretary. The Branch organised a film show and a few popular lectures and the first one was delivered by Mr. S. C. Roy, Deputy public Analyst to the Government of United Provinces on 'Food control problems in U. P.', and the other by Dr. M. B. Lall, Reader in Zoology, Lucknow University on 'Impressions of a visit to Europe'. The Branch prepared a note on the working conditions of scientific workers which was subsequently published in *Vijnan-Karmee*.

Bombay Branch

34 The Bombay Branch has a membership strength of 166 and the Branch Executive Committee for 1949 was constituted with Maj. General S. S. Sokhey as President, and Mr. V. S. Kalbag as Secretary. The Branch is now actively pursuing a preliminary survey of the working conditions of scientific workers in greater Bombay and has also taken up the grievances of the 'technicians' in regard to their pay scales and is pursuing it with the Government of Bombay. A number of scientific film shows and lectures were organised by the Branch during the year in collaboration with the British Information Services and the authorities of the Royal Institute of Sciences, Department of Chemical Technology, University of Bombay, and the local Branch of the Indian Chemical Society. An interesting film on 'plastics' was shown and on the occassion Professor Kamad gave a talk on 'plastics, prospects and retrospects'. On another occassion Dr. D. C. Lahiri spoke on 'Immunity'.

Dehra Dun Branch

The Barnch has got a membership strength of 70 and the Branch Executive Committee for 1949 was constituted with Mr. S. J. Shahaney as President, and Mr. A.N. Bhattacharyya as Secretary. The Branch submitted a memorandum to the Ministry of Defence and it is being pursued. The Director of Technical Development, Master General of Ordnances, Ministry of Defence interviewed a deputation of the Branch and discussed the various grievances of the scientific workers. The spirit of co-operation shown by the Association was appreciated by the authorities. The Branch submitted a resolution which was recommended by the Central Executive Committee to the Third Annual General Meeting.

Bangalore Branch.

36 The Branch has 50 members on its rolls and the executive Committee for 1949 was constituted with Mr. T. N. Ramchandra Rao as President and Dr. C. R. K. Murty as Secretary. Due to one difficulty or another, the Branch was not functioning properly during the year and the re-organisation of the Branchs was effected with Mr. A. Vasudeva Murty being elected to the office of Secretary. During the latter part of the year, the activities of the Branch were revitalised and a lecture was organised on 'Military and Political Consequences of the Atom Bomb'. During the year the Branch prepared a comprehensive note on the 'working conditions of the Scheme workers".

Patna Branch.

37 The Patna Branch has a membership strength of 69 and the Branch Executive for 1949 was constituted with Dr. P. B. Ganguli as President and Dr. T. N. Seth as Secretary. The Branch has taken up a case of grievances of temporary scientific workers under Government employ and is pursuing it with the Department of Agriculture, Government of Bihar.

Naihati Branch.

38 There are 52 members on the rolls of the Branch and the Branch Executive Committee for the year 1949, was constituted with Mr. Probodh Kumar Adhikari as President, and Mr. Sudhindra Sankar Das Gupta as Secretary. The Branch has organised a circulating library and has been conducting a night-class on technological subjects for the benefit of the members in the Branch. During the year under review the Branch prepared a comprehensive note on the working conditions of the scientific workers in industry.

Association of Scientific Workers, Ordnance Establishments, Kirkee.
(Affiliated to the ASWI).

39 This Association was organised in 1947 and it was registered as a trade union in 1948. As desired by the Government of India, this Association has since been affiliated to the A. S. W. I.

39.1 The Second Annual General Body meeting was held on 24th April, 49 and was attended by Shri C. R. Mitra, General Secretary, ASWI at the invitation of the Association. The terms of affiliation were finalised and it was unanimously decided that the Association be affiliated to the ASWI.

39.2 Since affiliation, there has been closer contract with the Head Quarters of the ASWI, and in the Poona Branch, the Association works as a Unit. Forty members of the Association are deputed as Affiliate members of the ASWI on the General body of Poona Branch, and two delegates represent the Association in the All-India Council of the ASWI.

39.3 Within the short space of about eight months the membership of the Association has increased by fifty per cent, and stands today at 230 as effective membership. The present Executive Committee of the Association was constituted in April, 1949 with Mr. F. M. S. Shaik as the President and Mr. V. R.

Joshi as the Secretary. Members who had been transferred permanently to Aruvankadu and Khamaria have already started their independent organisations at those Ordnance Centres under the guidance of the Association. Their affiliation with the ASWI is only a matter of time and is awaiting registration in the respective provinces.

39.4 Recognition of the Association by the Ministry of Defence is under active consideration and the constitution is being suitably amended as suggested by the Ministry and the ASWI.

39.5 The Association issues a weekly bulletin for the information of its members on all matters relating to the Association and the ASWI. It deals with Trade Unionism, Scientific Outlook, Democracy etc. besides the weekly happenings. It is issued at present in typewritten sheets.

39.6 The activities of the Association are mainly concerned with trade union aspects. For other constructive programmes it has made common cause with the Poona Branch of the ASWI. The most notable achievment was the revision of pay scales and re-designation of laboratory Assistants of Kirkee by the Ministry of Defence brought about by the concerted efforts of the Association in collaboration with its parent body, the ASWI. A case of intimidation of members by one of the officers-in-charge was successfully tackled by the Association through the local conciliation machinery as well as through the Head Quarters of the ASWI who waited in a deputation on the authorities at Delhi. As a result of the efforts of the Association the recruitment to supervisory cadres in the Ordnance Establishments at Kirkee has been restricted to technically qualifiedpersons.

39.7 A deputation consisting of CEC office bearers of ASWI waited on the Ministry of Defence twice during the year, and a number of grievances of the members have been redressed.

40 Apart from the above Branches a Unit of the Association is in existence in Cotton College, Gauhati and attempts are being made to develop it into a Branch in Assam.

41 The Scientific Workers' Movement is fast gaining momentum in India, and the scientific workers in this country are alive to their responsibility towards society particularly in view to the strain existing in the international political field. The working conditions and the social and professional status of scientific workers in India are no less important factors for the growth of movement in India. The Association, while looking after the economic and professional intersts of its members, is eager to share responsibility for national progress and we hope that it will continue to get the active support of all concerned for its activities in different spheres of national life. We urge upon the authorities to give due recognition to the Association and to consider the Charter and the Memorandum submitted by it so that the scientific workers in India can give their best for the furtherance of the cause of science and the economic development of the country.

42 In conclusion, we take this opportuuity to record our thanks to our colleagues in the Central Executive Committee and in the Branches and Units

and all our members whose guidance and active support stimulated the growth of the activities of the Association.

43 The Central Executive Committee is thankful to the following authorities fortheir co-operation and help:—

Minisiry of Education, Government of India.
Ministry of Defence, Government of India.
Ministry of Industry and Supply, Government of India.
Ministries of Food and Agriculture, Government of India.
Department of Scientific Research, Government of India.
National Institute of Sciences of India.
Indian Science Congress Association.
University of Delhi.
UNESCO Science Field Co-operation Office for South Asia.
British Information Services.
U. S. Information Services.
High Commissioner for Australia in New Delhi.
Embassy of the USSR in New Delhi.
Embassy of France in New Delhi.
Embassy of the Czechoslovak Republic in New Delhi.
Embassy of Italy in New Delhi.
World Federation of Scientific Workers.
Associations of Scientific Workers in Great Britain, Canada, New Zealand, Poland, Holland and South Africa.
UNESCO Headquarters at Paris.

C. R. Mitra
P. K. Kichlu
General Secretaries
Association of Scientific Workers of India,
University Buildings, Delhi 2.

Alterations and Amendments to the Annual Report for 1949 as adopted in the third Annual General Meeting at Poona

1.1 in page 6, para 16.7, line 2 - delete "prepared initially by the Delhi Branch of the Association".

1.2 in page 9,para 18.5, line 1, - read "41" for "39"; lines 2 and 3, read "three seats" for "five seats" and read "Patna Branch" for "Raniganj and Patna Branches".

1.3 in page 9, para 18.602, read "she should ordinarily be at least a matriculate and is" for "she is, at least a matriculate and is".

1.4 in page 9, para 18.606 - read after "by the Council" a new sentence - "In cases where affiliation is not recommended by the Central Executive Committee, these should be reported to the Council for final decision."

1.5 in page 10, para 18.81 read "New Delhi" for "Poona".

1.6 in page 10, para 18.84 - read "P. S. R. Sharma" for "V. R. Joshi."

1.7 in page 10, after para 18.611 and before para 18.7, add the following four paras :

Rule 5—delete the last sentence beginning with "Exceptional cases....."

After Rule 6, add "Exceptional cases may be considered for membership by the Central Executive Committee on their merits."

Rule 49—delete the last two sentences beginning with "Amendments and/or nominations.....".

Rule 65, line 1—read "Eight" for "Six" and line 5—read "six" for "four."

ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

Balance Sheet for the Year 1948—49

RECEIPTS:

	Rs.	As.	Ps.
Balance on 1-4-48 ...	316	0	3
Subscription and Enrolment fees collected at the Head Office ...	156	0	0
Contribution from the Delhi Branch ...	634	8	0
Contribution from the Bangalore Branch ...	190	0	0
Contribution from the Patna Branch ...	40	0	0
Contribntion from the Bombay Branch ...	553	0	0
Sale proceeds of pmphlets ...	34	12	0
Total ...	1,924	4	3

EXPENDITURE:

	Rs.	As,	Ps.
Postage ...	150	3	0
Printing and Stationary ...	538	8	3
Office expenses ...	288	10	6
Contribution to the World Federation of Scientific Workers ...	28	8	0
Conveyance and Travelling allowances ...	296	14	9
Total ...	1,302	12	6
Balance ...	621	7	9
Total ...	1,924	4	3

Details of the Balance

	Rs.	As.	Ps.
With the Vice-President (Dr. B. C. Guha)	17	2	0
With the General Sccretary (Mr. C. R. Mitra)	4	9	0
With the Bank on 31-3-49	529	13	9
Totol ...	621	7	9

Rupees Six hundred and twentyone, annas seven and pies nine only.

(Sd,) D. V. KARMARKAR
Treasurer.

(Sd.) C. R. MITRA
General Secretrry.

I certify that I checked the account and found it correct.

(Sd.) RAM BEHARI,
Auditor

MERCURY SWITCHES,
NEON—BULBS
GEISSLERS-TUBES
MANUFACTURED TO ORDER BY

L. KANT & CO.

318, CHARNI ROAD, BOMBAY 4
WE UNDERTAKE ANY ODD
HIGH-VACUUM WORK
OUR MAIN LINE: MANUFACTURE OF
NEON-SIGNS & GLOW-SIGNS
ILLUMINATION DECORATION FOR
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