VIJNAN-KARMEE

विज्ञानकर्मी

official organ of the
ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

Vol IV.] JULY, 1952 [No 7


Delicious
Nargisi kabab
So easy this way:
Soak 1 cup Bengal gram over-night. Mix together gram, 1 lb. minced meat, green chillies, a few pepper corns, little turmeric, chilli powder, cumin seed, cinnamon, cloves, salt and grind to a paste. Coat paste on to hard boiled eggs with damp fingers. Fry in Dalda like Kababs. Serve with sliced onions.
DON'T MISS THIS!
The New Dalda Cook Book in English—illustrated—art paper—80 pages—300 recipes—hints on health, hygiene, the kitchen—only Re. 1/- plus As. 8 postage.
THE DALDA ADVISORY SERVICE
P. O. BOX NO. 353, BOMBAY 1.
made with DALDA
Cook your savouries, dishes and sweets with Dalda—to make sure of getting the best flavour and taste out of them. Dalda is pure and nourishing and reaches you clean and safe in its sealed tins.
DALDA
SUPPLIES THE FAT YOU NEED IN A BALANCED DIET
HVM. 171-50

CONTENTS

VIJNAN-KARMEE

is the official organ of the Association of Scientific Workers of India
(Registered under the Indian Trade Unions Act, 1926)

Published monthly, distributed free to the members.
Annual Subscription Rs. 3/- Post free.

THE OBJECTS OF THE ASSOCIATION

ARE

To improve and safeguard the economic interests, the conditions of life and the professional and social status of all Scientific Workers in India

AND

To work for the most effective use of science and the scientific method for the uplift and welfare of the society as a whole.

Rates of Advertisement

Front Page	Rs. 90/-	Back cover inside	Rs. 60/-
Front Page inside	Rs. 65/-	Full Page ordinary	Rs. 40/-
Back cover	Rs. 80/-	Half ,, ,,	Rs. 25/-

1. Popular articles on and scientific technological subjects and on the social and economic problems of scientific workers are invited for publication in Vijnan-Karmee. Vijnan-Karmee offers full scope for discussion of various important issues facing the scientific workers and the society.
2. Signed articles and letters to the Editors from the scientific persons 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, 22 Havelock Square, New Delhi 3.

ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

VIJNAN-KARMEE

विज्ञानकर्मी

VOL. IV] July, 1952 [No. 7

TRADE UNIONISM AND SCIENTIFIC WORKERS

We are indeed indebted to Dr. S. S. Bhatnagar, Secretary Ministry of Education, Natural Resources and Scientific Research and Director of the Council of Scientific and Industrial Research for having advised scientific workers of the advantages of associating themselves as a trade union in his speech at Ambala a few days ago. This has come as an encouragement to the members of the Association of Scientific Workers of India which has already been registered under the Trade Unions Act of 1926. The Association was formed in the year 1947 with Pandit Jawaharlal Nehru as the President and it was during his tenure of office as the President that the Association was registered as a Trade Union.

The Association has not yet been formally recognised by the Government of India as a trade union representing the interests of scientific workers. It must be admitted that the absence of such a recognition has not stood in the way of the Association so far. The various Ministries of the Government of India have given their best consideration to some of the proposals made by the Association and in several cases grievances have been redressed. It is a matter of pride for the Association that Pandit Jawaharlal Nehru, the Foundation President of the Association and the only Honorary member of the Association has been taking keen interest in the progress of the Association. Far more remains to be done regarding the improvement of pay scales, status, living and working conditions of scientific workers. Reports have reached the head office of the Association that the formal recognition of the Association as a Trade Union is standing in the way of expanding the activities of the Association in the various States and that many existing members of the Association have been showing hesitation whether they should continue to be members of the Association or not.

We appeal to the members not to be unnecessarily worried about the recognition. From the support so far received we are confident of getting ourselves not only recognised but counted as a body of scientific workers who are ready to do their best for the rapid development of science and its application to the national problems. It must be remembered that this Association differs from other trade unions in that while looking to its own interests it calls upon its members to do national service as regards the development of science and scientific thought in this country.

The composition of the membership of the Association of Scientific Workers of India differs in many respects from that of other Trade Unions in the country. The Association consists of members who are gazetted or non-gazetted servants in the Central or State Governments in different positions and in different departments, semi-Government servants such as those working in the laboratories of the Council of Scientific and Industrial Research and other similar bodies, University teachers and students, scientific workers in the industry and other private bodies. Under the existing rules it might be difficult for the Ministry of Labour to accord recognition to the Association as a trade union body which would satisfy the requirements of the Labour Departments in the various State Governments. The Central Executive Committee of the Association is trying to get a "blanket" recognition for the Association as a body representing all scientific workers irrespective of their employment in industry, universities or Government.

The Ministry of Labour proposed to introduce in the last Parliament two Labour Bills, namely, the Trade Unions Bill 1950 and the Labour Relations Bill 1950. We examined the effect of the various clauses of the Bills on the working of this Association and we considered that the two bills would nip in the bud the dreams of the unity of purpose of scientific workers as regards their own well-being and their collective efforts for the uplift and welfare of the society as a whole. There had been opposition to the bills from many quarters and from different labour organizations. It was announced by the Minister for Labour that the two bills would be modified to a great extent before they are again placed before the present Parliament. A questionnaire is going to be issued by the Ministry of Labour regarding these bills. We feel that it is necessary to make provision for compulsary recognition of Associations like the Association of Scientific Workers of India which function as bodies representing members of a profession at different levels spread throughout the country. The necessity of the development of trade unionism has recently been stressed by the Governor of West Bengal and the Chief Minister of Bombay State. Mr. Morarji Desai while addressing the working journalists at Ahmedabad asked them to develop themselves into a strong and healthy trade union. Another body of All India activity which is developing itself into a trade union are the "Artists." It would therefore be necessary for the Ministry of Labour to recognise such trade unions for active work throughout the country without any State barriers. We have no doubt that the Associaton of Scientific Workers of India will be allowed to continue its work unhampered.

CORRECTION

In the Survey Reports on Working and Living Conditions of Scientific Workers in Greater Calcutta Area published in June 1952 issue of Vijnan-Karmee (pages 8-14) the expenditure is calculated on the basis of price level prevalent at the end of 1951 and not 1947 as reported on page 8. The error is regretted.

—Editors

Economy Measures of the Government of Hyderabad

(*Communicated by Secretary, Hyderabad Branch, ASWI*)

Introduction.

Towards the end of 1950, the Government of Hyderabad instituted a committee under the chairmanship of Shri A D. Gorwala, to investigate into the administration of the Government and suggest ways and means of reorganising the administrative machinery with a view to rendering it efficient and economical. The committee accordingly investigated the Government machinery and recommended certain measures to the Chief Minister. The committee appears to have accomplished a good job in assessing the rotten core of the administrative set-up that has been responsible for the backward condition of the state for many decades. The Committee has given some valuable suggestions in the direction of cutting down the huge expenditure on the luxuries of some departments and incorporating general efficiency in the whole administrative set-up. However, the committee in trying to economise on the expenditure of the Government, has resorted to cutting down the salaries of the Government servants, including, of course, those of the scientific workers. The Hyderabad Branch of the Association of Scientific Workers of India considered the proposed reductions in the salaries of scientific workers and passed a resolution requesting the Government not to take measures affecting the salaries of scientific workers in particular and of all workers in general, in view of the persistently prevailing high cost of living. The Branch also constituted a sub-committee to go through the economy measures proposed by the Gorwala Committee, and to suggest alternative ways and means of balancing the economy of the State. The sub-committee consisted of the following persons :—

Mr. G. Satyanarayana Rao (Convenor), Dr. P. M. Bhargava and Mr. K. N. Iyer (members). The comments and suggestions of the sub-committee are embodied in the following report.

Pay Scales.

The economy measures proposed by the Gorwala Committee are expected to bring about a total saving in the recurring expenditure of about 3.6 crores. Out of this, the Committee has recommended a saving of Rs. 38.68 lakhs through cuts in salaries. The Committee has recommended the cuts presently only in the salaries of the gazetted staff, as probably it realised that the margin of saving in the case of non-gazetted staff after meeting only the absolutely essential expensese, is negligible if any, under the prevailing economic environment.

The scales of pay in force at present were introduced about four years back by the 'Pay and Service Commission' appointed by the then Government to revise the salaries of the Government employees, which were originally fixed about thirty years ago. The following extract from the report of the 'Pay and Service Commission' (page 7) will indicate the reasons for the revision of the pay-scales : "......So far as the cost of living in Hyderabad is concerned, it is in many respects not lower than in many Indian Provinces. We have therefore no hesitation in recommending Rs. 300 O.S. (O.S. Rs. 116-10-8= Rs. 100/- of Indian curreney) as the minimum starting salary of any gazetted post in the services. Against a cost of living index of 175 above the normal, and even granting that the prices might ultimately stabilise at 75% above the prewar level in the course of next 5 or 6 years (as is generally supposed), the increase is very moderate...'. The increase in the expenditure by the revision of the salaries of the gazetted staff was 43% over the then figure. As stated by the Commission itself, this increase was undoubtedly very moderate compared with the increase in the cost of living at that time.

The Gorwala Committee has recommended the following pay-scales for the gazetted staff (all amounts in O.S. currency) : (i) Rs. 300-20-500 instead of the present Rs. 300-600. (ii) Rs. 400-25-550-E.B. 30-700 instead of the present Rs. 400-800, and (iii) Rs. 700-40-900 (in some cases Rs. 600-40-1000)-E.B. 50-1400 instead of the present Rs. 900-1500. As already stated above, the existing scales of pay were fixed four years ago when the cost of living index was about 270, whereas the present index is nearly 450. The Gorwala Committee itself writes on page 53 of its report "........It is true that the cost of living has moved up since the present scales were sanctioned. Nor unfortunately there seem to be any signs of the Government of India's ability to hold the cost of living......'. As is therefore evident, the existing scales of pay should actually be increased by about one and a half times in proportion to the increase in the cost of living since the time the scales came in force. Instead, the Committee recommends cuts in the scales, which would clearly be a grave injustice to the employees who would be affected.

As far as the implementation of the cuts in the scales of pay of the gazetted staff, as recommended by the Gorwala Committee, is concerned, one redeeming feature is that the Government has given an option to the present incumbents, so that they can choose either the old or the revised scale. The proposed cuts in the pay-scales would therefore affect only the new entrants. However, as has already been stated earlier, in view of the disproportionate increase in the cost of living, it is very unfair to give reduced pay-scales even to the new entrants.

The Osmania University is also proposing a reduction in the pay-scales of its staff. In this case, the recommendations of the University Commission should serve as the guiding factor, and since the present pay-scales of the University staff are not higher than those proposed by the Commission, the same scales must at least be retained, if not enhanced.

House-Rent Allowance.

The Gorwala Committee has recommended abolition of the house-rent allowance to employees drawing a salary of more than 125/- p.m. and reduction in the case of those drawing below Rs. 125/-. The Committee states that 'every person is normally expected to spend at least 10% of his income on house rent'. The argument is however unrealistic, because it is a well-known fact that even if one is prepared to pay 20% of his salary as rent, he cannot easily get a living accomodation in the cities these days. Any reduction or abolition of the house-rent allowance would therefore only add to the already considerable economic burden of the employees.

Education.

The Gorwala Committee has proposed a saving of Rs. 118/- lakhs on education by cutting down the grants-in-aid to schools, and reducing the facilities for free and half-freeships to students. In view of the existing educational and economic backwardness of the state, abolition of such facilities and reduction of the grants-in-aid to schools which find it difficult to run even with the aid they are receiving (which, for achieving a better standard of education, should actually be substantially increased), would greatly hamper the progress of education in the State; the present plight of the school teachers is too well-known to be stressed.

Capital Projects.

The Gorwala Committee feels diffident about the possibility of procuring the necessary capital for the execution of big projects like the Tungabhadra project, the Godavari Valley scheme, etc. These projects when completed would undoubtedly go a long way towards building up the economy of the State, apart from providing additional comforts and amenities to its people, resulting in a rise in the standard of their living. In an underdeveloped State like Hyderabad, the idea of delaying or slowing down the execution of these projects does not augur well for the progress of the State. Capital for the execution of these projects ought to be made available, which should not be difficult in view of certain big assets of the State, as indicated in our recommendations which follow :

Recommendations.

In our opinion, the Government should not take any measures to reduce the expenditure on items like pay-scales, house-rent allowance, education and capital projects. Instead, we suggest the following alternative methods for the betterment of the financial condition of the Government.

1. Police :—According to Gorwala Committee, the normal expenditure on police should not cost more than 10% of the budget in any case. It is interesting to note that the expenditure on police has increased from 71.15 lakhs in 1945 to 5.2 crores in 1950-51. Thus the present expenditure on police forms about 17% of the total state budget (the State budget being nearly 30 crores), and is the largest single item of the budget. Even in the budget estimate for 1952-53 recently presented in the Hyderabad Assembly, about five crores have been alloted for expenditure on police out of a total state budget of 33 crores. The Gorwala committee has proposed a cut of only 75.5 lakhs in the expenditure on police. We suggest that the expenditure on police be reduced to 10% of the budget, which would mean a saving of about 170 lakhs in this single item according to this year's budget, when compared to that of 75.5 lakhs recommended by Gorwala Committee.

2. Jagirs and the payment to and property of Nizam. The Gorwala Committee has alloted 1.14 crores per year as compensation for Jagirs, for some years to come. Moreover, the Government pays a sum of Rs. 50 lakhs to the Nizam annually. These colossal payments as compensation for jagirs and to Nizam, are unproductive and wasteful; we therefore propose that these may be very much curtailed if not stopped, and invested on productive schemes. The Gorwala Committee further comments that '......Hyderabad has been fortunate in having within its territory a single individual from whom it has been able to borrow 18 crores in the course of the last year...'. We would suggest that the excessive properties of Nizam be annexed by the Government for the sake of execution of projects which aim towards promoting the welfare of the people.

3. State Industries :—The Government owns a good proportion of shares in different industries in the State, but most of these industries are in a deplorable condition; the cause, it appears, lies in continued mismanagement. The Gorwala Committee instead of recommending a complete purge in the set-up of these industries from corrupt elements, states that attempting to run an industry as a Government department is to court failure. We are, however, certain that if the Government takes proper measures towards efficient running of these industries, these investments could be a source of considerable revenue to the State.

4. Agriculture :—Agriculture is the major source of income in the State, as elsewhere in the country, however, there is considerable room for improvement in the quality and quantity of the agricultural products of the State. An effective way, in our opinion, of increasing the yields of the land is by introducing land reform so as to provide incentive to the real tiller of the soil. We therefore suggest that the Government should enact the necessary legislation in this regard.

By taking the steps suggested above, we feel that the Government should not only be able to raise the necessary revenue for balancing its economy, but also to create more employment in the State and promote the welfare of the people.

SCIENCE TEACHING IN INDIA

By

Dr. M. K. Haldar, Delhi College, Delhi.

(Presented at the Symposium on Social Relations of Science organized by Delhi Branch)

The history of civilisation is not wholly a uniform of drift towards better things. It may appear to be such if we map it on a scale which is large enough. But such a view often neglects the details on which rests our whole understanding of the process of history. New epochs in history emerge with a comparative suddenness, if we regard the thousands of years through which the epochs are adumbrated.

The beginning of the 19th century of our era witnessed the disruption of the age-old, so-called culture based upon the Manu-Samhita. With the advent of the 19th century renaissance, it seemed that the end of that medieval outlook in which we were living was near at hand. But the renaissance was begun and lost in a cul-de-sac.

On the spiritual crisis of our time there is no laudator temporis acti or prophet of misfortune who has not to enlarge, indicating its cause, describing its effects, and pointing to its remedies. We no longer recognise either in the field of value or in the field of conduct any of the sovereign values which from time to time was placed at the summit of learning as standards or guideposts, and to which our previous generations in the last instance resorted in order to close with a final pronouncement. But neither have been taken up the road opened by inexorable critical learning.

The root of the crisis lies in the 19th century which found itself face to face with the task of establishing newer forms of value. There were two roads which were most commonly attempted —Idealism and Positivism. Idealism and Positivism were the rails along which, in alternating bursts of decadence and fortune, the 'orthodox' or academic thought of the last century travelled. It was the case of two contrasting experiences, which were, in their extreme forms, irreconcilable; yet both, through opposite channels, tended to destroy our sense of law-giving universality or unity. The subjection of the first was in constant danger of deteriorating into servile servitude; the liberty of the second was always threatening to transform itself into unbridled licence and anarchy. Man found that he was by turns more than man and less than man; and out of so profound a contrast there emerged the sense of crisis which cast its shadow over the birth of the 20th century.

Any one who looks at this hoary country of ours with its snow clad mountains peaks and extensive plains, with its half naked, semi-civilised 'aboriginals' and well-clad 'gentlemen' of the capital, with its palaces and dilapidiated huts, with its intellectuals who move from the infra-red of conservatism to the ultra-violet of 'modernism', with its politician mystics and mystic politicians, with its philosophers who are theologians, with its people having an infinite capacity of transforming men into Gods, with its black-marketeers spending thousands of rupees for the erection of religious temples, is completely baffled and perplexed in the midst of a jumble of blattant contradictions.

When a crisis comes to a head, there are some spiritual attitudes which masqurade as the only set of valid ones. There is the attitude of the man who renounces all values and accepts anarchy, taking upon himself the entire weight of the crisis as if it were a burden to be borne until it overwhelms him, a punishment to be suffered until it destroys him; the man to whom, in short, the crisis is not a subject for reprobation or a spring-board for a forward leap, but his own destiny, his last refuge; and to whom his humiliation is a pleasure, and almost an exaltation of his any lack of support. Either there is a total loss of all faith in man or there is an inevitable attitude of self-denigration in its most varied and visible forms, now deeply suggestive, now bold and pugnacious.

There is also the attitude of atavism. I am referring to that trend of atavism which we find in our country. Whatever could be and whatever can be said has already been said in our old Sanskrit literature. These people are very voicifarous in proclaiming the vices of modern civilisation. Our society has come to a stand-still. If we cannot move it forward, soon it will recede following a very obvious natural law and thereby face total annihilation or cease to pulsate with the full vigour of life. And to live the life of a paralytic is worse than death. The signs of degeneration and decay are already apparent from our advocacy of Ramrajya. It is our social duty to arrest this backward drift and to open newer avenues through which our society can travel. If we fail we will ruin our lives and do treason to the future. In such a state of affairs, the students of science have a special duty to carry out. I do not think that I would be totally wrong if I said that in them lies our future. Even to-day we have not been able to extricate ourselves from that other worldliness which Europe left behind in the 16th century. Even to-day we have not been able to distinguish between philosophy and theology. Indeed the word 'philosophy', I learn from the testimony of a very reputed Indian scholar of Indian philosophy, cannot be translated properly into any of the Indian languages. A philosopher in the West can drink, play, marry and enjoy his life like any other normal human being. But in India one must be a 'seer'; one must be either a Ramkrishna or Vivekananda or Sree Arobindo in order to be dubbed as a philosopher. Whatever might be the merits of anti-intellectualism, I am firmly of the opinion that it will not be able to cut any ice in the present state of our society. I confess my complete ignorance of the mystic's world. I know nothing about its reality or unreality. I have no intention of denying it, nor do I claim that the insight which reveals that mystic world is not a genuine one. But I do claim that intuition or insight, untested, unsupported and unverified is not a sufficient guarantee of truth though much of the most important truths were first suggested through insight or intution. Intuition or insight, untested and unverified is not at all important or good for the society. Indeed too much reliance on the mystic's outlook takes us away from life. Mysticism is the direct anti-thesis of science. Mysticism may be valuable as an individual's way of life but we must not allow it to enter our social life and masqurade as philosophy. We are the worst sufferers of a wide practice of such an outlook.

It is the duty of the students of science to popularise their ideas, I mean the fruits of scientific knowledge and the general principles of science, among the public. Fear of the unknown is the root cause of all mysticism. The study of science can effect a change in our knowledge by showing that man can with proper effort have a progressive mastery over nature. Then and only then can a change in our outlook be effected. Otherwise there is no future for our society. Our work would be akin to T. H. Huxley's work. A general change in the out-look of the individuals in our society will usher in a new atmosphere conducive to the further development of science in our country. If there is no change in the outlook of the people in general, science cannot develop.

Society is constituted by individuals. The individuals in their turn are social beings. A society is an aggregation of individuals having definite relations to the individuals belonging to the same society and also to individuals and societies which lie outside the society under consideration. A society is not merely a juxtaposition of individuals. It is a collection of individuals having a certain class of relations which is generally called 'social'. A society shapes an individual belonging to it and the individual in its turn puts its impression on the society. Every activity of the individual is to some extent determined by his social relations and in the turn influences the society however trivial and insignificant that influence may be. To accept a fatalistic attitude towards social problems is totally unwarranted. No human thought is totally unconnected with the social conditions prevailing in and antecedent to the particular epoch in which it is thought. Scores of examples from history can be cited to show now a particular epoch has given rise to a particular way of thinking. On the other hand history will bear testimony to the fact of very fruitful and wise theories being rejected and lost into oblivion at first only because they were not suitable to and in accord with the genius of a particular age. For the growth of any scientific idea the proper atmosphere conducive to its development and nourishment is necessary. A proper atmosphere for the growth of scientific ideas can never be achieved unless and until the whole fabric and tissue of the entire society is effected by the popularisation of the scientific principles. The inquisition of Gallelio is a solemn warning and a great pointer to us. If science becomes the monopoly of a selected individuals, the consequence is very often perilous.

It is frequent complaint of any serious student of science in India that he does not find the proper atmosphere for his work. A student of our country who goes to a foreign laboratory can easily complete his thesis within two years and very often produces tolerably good work. The same student sits almost idle when he comes back to India. A close scrutiny of the facts will reveal that the social conditions in India is not yet as conducive for the development of science in India as we find it elsewhere. Even students of science approach the country quacks when they are ill, call witch hunters to drive the ghosts and pay homage to the superstitions. This apathy towards scientific development is reflected even in our Planning Commission report where little money could be found for educational developments. The argument given in support of the report involves a vicious circle. We cannot proceed on with our national development scheme without the requisite personnels for it. On the other hand we cannot spend much money for the rearing up of scientific personnels because our pressing needs are the other development projects. As a result we will have to hire technical and scientific personnels from outside. And we have already had a good test of what these foreign experts sometimes are:

What, then, are we to do? Should we sit idle and pray to God for the betterment of the social conditions? Or should we take up the problem in right earnest and try to find a way out? To invoke God at the time of any crisis and to sit idle relying on providential munificence is the philosophy of the imbeciles. The problem before us is a human one and if it can be solved at all, it can only be solved by us.

To start with we must have a correct apparisal of the conditions prevailing in India. I mean a proper stock-taking of the conditions must be undertaken. We must try to find out the effects of scientific development in India. Not only that, we must ascertain why scientific ideas are not so popular in India? Why the average Indian believes more in the quacks even when a qualified medical practitioner is available. All this is historical study. But historical studies when divested of all considerations for the betterment of the society is barren. That is where science joins hands with the humanities and the social sciences.

In order to achieve a social atmosphere which will be conducive to the further development of science it is imperative that the scientific spirit which is not repugnant to the humanistic and social studies and which is not a dogma should be inculcated upon the individuals belonging to our society through the teaching of science in such a way which shows the connection of the scientific outlook with the solution of the problems of our every day life. The task of changing an incondite society is an uphill one. But we can add our lot to it. Society advances by drawing limitations.

"Anti-Scientific Trends" Forum

(Reproduced from American Association of Scientific Workers NEWS LETTER dated Feb. 15, 1952)

Several hundred scientists attended the forum on "Anti-Scientific Trends in America", organized by the AAScW, at the annual meeting of the American Association for the Advancement of Science in Philadelphia on December 27. In papers by five prominent scientists, and in a lively discussion, some current vulgarizations, misuses, and hostile attitudes toward science were evaluated. Recognizing the threat implicit in these trends, to science and to all cultural values, the participants urged more and better public relations for science; and heavier emphasis on its positive, humanistic aspects.

Introducing the forum. D. Kirtley F. Mather of Harward (retiring president, AAAS) reviewed and answered some current attacks on science and scientists : (1) "Science contributes to the present decay of public morals."—Evils such as war are evil in themselves, and not merely because they misapply science. (2) "Scientific benefits, if applied to the world's backward areas, will simply sharpen the disaster of overpopulation."—This badly oversimplifies the diverse effects of industrialization. Actually, a new but workable population balance emerges. (3) "Scientists are potentially disloyal."—The internationalism and intellectual freedom of science, which are the actual target of this charge, are its most precious gift to humanity.

Velikovsky's "Worlds in Collision" was the object-lesson selected by Director I. M. Levitt of Fels Planetarium—a lesson in the need for more action by scientists to bring science soundly to the public. Such aberrations flourish if the public is allowed to view science as a mystic cult or a guessing-game. One antidote is to show that scientific laws "work", are verifiable, permit prediction—and can be understood.

In psychiatry and allied fields, Dr. Irving Bieber pointed out, misuses and distortions of scientific method within the field may work even more harm and discredit than unauthorized outside voices can. An example is the fashion for mechanical and oversimplified transfer of theories of individual psychology—themselves controversial—far afield into sweeping, popular-toned, analogistic generalizations about current world social-political problems. (E.g., the "explanation" of war as an expression of unconscious sexual symbolism : of problematical differences in "national temperament" as results of different customs of infant-rearing.)

Newswriting and public relations of science were discussed by John E. Preiffer. Despite vast improvement in science reporting in recent times, the forces of anti-science and pseudo-science seem to have better public relations. Scientists themselves must take greater responsibility—through intensified and broadened participation of all kinds in public relations and education—for "putting across" to the public not only the specific accomplishments of themselves and their colleagues, but also the objectives and spirit of science at large.

The anti-scientific attitudes of the man in the street and of governmental bodies were discussed by Dr. I. Fankuchen. The recent legislation in New York which has led to the exclusion of regents' questions on the germ theory of disease was a case cited. Recent inroads on traditional travel rights were analysed, and the eloquent protest of the British New Statesman & Nation on the impounding of Dr. Burhop's passport last summer was read : "In the first place there is the problem of how to retain for the scientist the spiritual freedom without which he cannot do his work and of which the right to travel and discuss with fellow scientists is an essential part. In the second place we have to defend the right of the free man, specifically guaranteed in Magna Carta, to travel abroad... the Foreign Secretary has imperilled both these kinds of freedom." Thus anti-science, manifested in rigid restrictions on scientists, is in reality anti-humanity.

The combination of high audience interest and splendid chairmanship on the part of Dr. W. F. Hewitt made for truly substantial discussion following the formal papers. It was pointed out that perhaps the most effective way to make the NY schools put back into the curriculum those portions of biology now deleted is to ask the colleges not to accept such courses for entrance credit. Other matters brought up from the floor were the question of publication by the AAAS of discriminatory job advertisements, and the general problem of combatting discriminatory hiring practices for scientists. Concrete suggestions of means for combating the anti-scientific wave included an editorial voice for AAAS publications (Science and Scientific Monthly); and various improved AAAS-sponsored public educational outlets through mass media (newspapers, radio, etc.) As a result of a formal motion these suggestions are being transmitted to the Executive Committee of the AAAS Council.

ACTIVITIES OF THE BRANCHES

Patna Branch.

A General Body Meeting of the Patna Branch was held on Sunday the 24th February, 1952. The General Body reviewed its activities and the lack of enthusiasm by the members. The following Executive Committee and Office Bearers were elected for the year 1951-52.

President	Dr. T. N Seth.
Vice-President	(1) Prof. N. L. Sharma.
	(2) Dr. S. Anwarullah.
General Secty.	Dr. S. Sharan.
Joint Secretary	Dr. B. N. Singh.
Treasurer	Dr. R P. Verma.

Members of the Executive Committee :—

(1) Shri S. K. Mohindra.
(2) Shri P. R. H. Acharjee.
(3) Shri N. N. G. Dastidar.
(4) Shri H. L. Vidyarthi.
(5) Shri H. N. Banerjee.
(6) Shri J. Dutt.
(7) Shri K. R. P. Sinha.
(8) Shri A. C. Sen.
(9) Shri Raj Nandan Prasad.
(10) Shri M. Q. Doja.
(11) Shri P. B. Ganguly.
(12) Shri D. P. Sinha.

Forest Research Institute and College Unit, Dehradun.

The General Body Meeting of the Forest Research Institute and College Unit Dehradun was held. The Honorary Secretary reviewed the activities of the Unit during the past year. The present strength of the unit is 19. The following were elected as Office Bearers and Executive Committee for the unit for 1951-52 :-

President	Shri K. N. Tandon.
Hony. Secretary	Shri C. P. Dhamaney.
Hony. Treasurer	Shri K. C. Virmani.

Members :—

(1) Shri Man Mohan Singh.
(2) Shri D. P. Ghosh.
(3) Shri H. M. Bery.
(4) Shri S. K. Purkayastha.

Izatnagar Unit.

Dr. C. V. Perill, M.D., gave a talk on 'Adapting surgery to Indian conditions' at the Izatnagar Unit on 24th March, 1952. Dr. Perill showed a variety of instruments and appliances required in the practice of surgery which he had himself devised as a substitute to the much costly ones available in the market. The President in his concluding remarks said that Dr. Perill has shown himself to be not only a distinguished surgeon but also a high class practical engineer. At a certain stage various branches of science blend together and the beautiful effect of the blending of the medical and engineering branches was clearly manifested in the very useful aud cheap appliances prepared by Dr. Perill.

Delhi Branch.

The Delhi Branch of the Association arranged a reception to the scientist members of the Parliament on 30th May, 1952 in the National Institute of Sciences Buildings, New Delhi. Dr. B. Vishwanath, President, Delhi Branch ASWI introduced the scientist members Prof. S. N. Bose (Council of States) Prof. M. N. Saha (House of the People) and Shri Lal Singh (House of the People). He mentioned that the other two scientist members Major General S. S. Sokhey (Council of States) and Mr. G. R. Damodaran (House of the People) were out of station and as such could not be present.

Mr. A. C. De, General Secretary, ASWI, read out the following address of welcome to the scientist members of the Parliament on behalf of the Association :—

Science and technology constitute the very bedrock of modern civilisation and scientific workers are directly concerned both with the application of science for the promotion of human welfare and with the prevention of the destructive and anti-social uses of science. With this object in view and to improve the professional, social and economic conditions of the scientific workers, which is an imperative necessity for the progress of the community as a whole, the scientific workers of India organised themselves and formed the Association of Scientific Workers of India in 1947 with Sri Jawaharlal Nehru as its Foundation President.

It is a matter of great pleasure to-day to the scientific workers of India that the first Parliament of the Republic of free India consists of at least a few eminent scientists. Perhaps it is the first time in the history of India that science is represented in her destiny-making body—the Parliament. We the scientific workers, of India feel honoured and take this opportunity to welcome you, revered colleagues, at this recognition of the role of scientific workers in national life.

The Association has been working for spreading the knowledge of science and its social implication among the people of the country by arranging symposia, popular scientific talks, discussions, film shows and through its official organ Vijnan-Karmee. It has been working in close collaboration with the Indian Science Congress Association. National Institute of Sciences, UNESCO (Science Co-operation Office for South East Asia) and the World Federation of Scientific Workers to which it is affiliated. It strives to advise the Government in solving the national problems and urges it to improve the living and working conditions of the scientific workers in general and industrial scientific workers and agricultural research workers in particular. It has submitted a Memorandum to the Government in this connection, but unfortunately nothing appears to have been done in this connection.

We look forward to you, the Scientist Members of the Parliament, so that science and scientific workers get fair deal and that the condition is created favourable for the most effective and healthy growth of science. Your presence in the Parliament will remove the hindrance to the rapid progress of science and to the improvement of the conditions of scientific workers in our country. We feel sure that you will try to convince the other Members of Parliament, both in and outside the Houses, that science and scientific method must play a big role in their deliberations. We are not downhearted with the small number of Scientist Members.

Prof. Bose in his reply said he would remember his responsibilities as a scientist member in his parliamentary activities and promised to place the view points of the scientific workers before the Parliament. He hoped that science would be recognised in the country. The progress of the country has to depend on science and scientific development and the scientists have to work hard for the spread of scientific knowledge among the common man—the mass, to fight ignorance and accompanying ills. He wondered what would be the best way to spread scientific knowledge among the country men. Scientists should take the responsibility of preaching the knowledge they gathered about scientific message. He thought that the only way to popularise science and help overcome awe for the scientific knowledge was if scientists take up the problem regionally and popularise science by the local languages whatever may be the national language of the eountry. Much stress should be given on regional and local surroundings. One should show the benefits of scientific methods, as for example economy of labour and money. There might have been some failure in the past but that was due to the false method namely, science propagated in foreign language whose spirit cannot be easily appreciated. One should take up the spirit of the thing and not the language and try to make the common men understand that by learning science the advantages could be utilised. Prof. Bose thanked the Association for the honour shown to him and the other scientist members of the Parliament.

Prof. Saha expressed his gratitude for the reception arranged by the Association of Scientific Workers of India which afforded an opportunity of meeting friends—scientific workers. He said that the work in the Parliament absorbs much of his time and wondered if he would continue. He referred to the questions put to him very frequently by his colleagues why he joined the political work. He replied that being a scientist he could observe for the first few months about the happenings in the Parliament and see if it could be worthwhile to continue for the benefit of the country. He was wondering if he could be really useful to the scientific workers by remaining in the Parliament. He referred that there were hundreds of problems discussed in the Parliament but none discussed in the scientific way. Some times the members were not conversant with the work and most of them do not speak objectively (This is true also for the members in the Treasurery benches). The progress of the country depends on the development of science and technology and in this respect he was happy that the Prime Minister was helpful. He remembered the words of Dr. Bhatnagar that the mere establishment of national laboratories would not be sufficient. He fully agreed with Dr. Bhatnagar that merely the national laboratories wont't serve the requirements unless more strees was given on University education. He referred the report of the Kher committee that at least 10% of the total revenue of the country should be spent for education but unfortunately at present less than 1 percent of the revenue is spent. The report of the University Education Commission as submitted by Dr. Radhakrishnan pointed out that Rs. ten crores should be sanctioned for the Universities but unfortunately no decision has yet been arrived at on this vital issue of the country. Prof. Saha, however, hoped Dr. Bhatnagar would see that proper emphasis is given for the University education. He said that there are many occasions in which the advice of the scientists is sought and he hoped that his presence in the Parliament would further the cause of science and technology in the country. He expressed that diverse views are expressed in the Parliament and the members often speak with mental reservations. He hoped to meet the scientific workers more often and appealed for the cooperation of at least one dozen scientific workers for his Parliamentary work.

Shri Lal Singh thanked the Association for the reception and said that the Parliamentary activities are new to him. In fact the parliamen tary practices appeared to be new and strange to the new members. The politics was new to him and in fact the scientists are not accustomed to the means adopted by the politicians. Most emphatically he said that the scientist members won't follow the dirty games of politics but would try to help the cause of science and scientific workers of the country. He regretted that the I.C.S. officers are on the top of the scientists and as such not much good could be expected. There was the exception of Dr. Bhatnagar who is the Secretary of Education Ministry. He was aware of the handicaps of the scientific workers and promised to express the feelings of the scientific workers in the Parliament. He would feel honoured to serve the scientific workers for which they should not hesitate to approach him.

Dr. J. J. Chinoy, Vice-President, Delhi Branch ASWI thanked the scientist members of the Parliament and the distinguished guests on behalf of the Association. He said that science does not mix well with politics. However there was happy blending this time due to the presence of the scientist members. The Scientific workers would look forward to their activities in the Parliament with great interest. It is in the augury of times that the people of the country have elected the scientists to the Parliament. He was glad that a teacher has also found his place in the Parliament. He thanked once again the guests and the authorities of the National Institute of Science for offering facilities to the association for holding the reception.

Scientific Terminology in Hindi

To The Editors,
Vijnan-Karmee, New Delhi.

I would like to draw, through the hospitable columns of your journal, the attention of all the scientific workers of India to the urgency of adoptation of the scientific terminology in Hindi. We are aware that the Government of India has fixed a period of fifteen years for the gradual change-over from English to Hindi. The period of fifteen years is though unnecessarily long, Government could not have fixed a shorter period because of its own lack of definite policy in this relation. On the other hand some State Governments have taken very hasty and unwise steps in declaring Hindi as the medium of instruction even without giving due thought to the problem of formulation of the scientific terminology in Hindi. A hundred years back, a gradual development of scientific terms may have been feasible, but we are right in the middle of twentieth century and the science is very much advanced. If we depend upon the slow development of scientific terminology we shall have to stop the teaching of science for a considerably long period which is neither possible nor desirable. We must, therefore, adopt some terminology as early as possible and march forward in science and its application for the welfare of the masses. We cannot wait.

Whatever terminology we may adopt, it must fulfil two aims; firstly it should be intelligible and appealing to the common masses for the rapid dissemination of the scientific knowledge and secondly it should be scientific i.e. based on the development of the science itself. There is now a tendency growing in a section of "Learned people" to coin every term of science and technology from Sanskrit root. This is definitely a reactionary development which will not only make science and scientific terminology quite remote from each other, but also keep away the knowledge from the masses. If these people have some knowledge, for instance, of the chemical compounds and the number of specific names of plants and animals found in the world, they would have themselves realised the non-feasibility of their task. It will prove a real boon for the cause of development of science and the advance of our nation, if these so called learned people leave the task of formulating scientific terminology to the scientists in education. The scientists, I can assure them, know the value of old and cultural Sanskrit language and they would pay due attention to it whenever a new term is to be coined, for the sake of the scientific development of the country.

Now having said the above, I would, hereby, appeal to all the scientific workers and the Association to take up the work of the formulation of the scientific terminology upon themselves for the healthy growth of science. They should adopt such a terminology which should be intelligible to the masses and also related to the actual development of the science itself. In this connection, may I put the following suggestions, as basis for the immediate discussions so as to formulate a definite line of action :—

1. The scientific terms in vogue for the present, shall be roughly grouped into three classes for the sake of translation.

(a) The specific names which include the scientific names of the plants and animals and the names of the chemical elements and compounds etc.

(b) The specific terms which include such terms as Magnet, Electricity, Battery, Cathode etc.

(c) The descriptive terms which include all the terms having a definite meaning within the name itself, as nascent, hermaphrodite, elasticity, decantation etc.

2. The specific names shall be transliterated and adopted as such. If for some scientific names some Hindi terms are already in vogue, they shall be retained as synonyms

3. The specific terms shall be derived from any of the following sources so as to make them simple and intelligible :

(a) from the spoken language, if there are already such terms ;

(b) from English and other foreign languages, if they have been already incorporated in Hindi ;

(c) from Sanskrit, if simple and intelligible terms are feasible from it.

4. All the descriptive terms shall be selected preferably from the spoken language as far as possible, and if need of coining perfectly new terms arises, then simple words from Sanskrit shall be formed by meaning.

5. The chemical symbols, formulae and mode of expressing the reaction in equations shall be adopted as such in Roman script and Arabic numerals.

6. The same policy, as adopted in relation to Hindi, shall be followed by other languages (regional) also, developing their own specific terms and keeping their own language and script as the medium of instruction.

Thanking you,

Yours faithfully,
NARENDRA SINGH.
Jaipur.

Regd No. D.—16 FOUR ANNAS

Published by Dr. P. K. Kichlu and Printed at the University Press, University Buildings, Delhi 8

VIJNAN-KARMEE

विज्ञानकर्मी

official organ of the
ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

Vol IV.] AUGUST, 1952 [No 8

CONTENTS

VIJNAN-KARMEE

is the official organ of the Association of Scientific Workers of India
(Registered under the Indian Trade Unions Act, 1926)

Published monthly, distributed free to the members.
Annual Subscription Rs. 3/- Post free.

THE OBJECTS OF THE ASSOCIATION

ARE

To improve and safeguard the economic interests, the conditions of life and the professional and social status of all Scientific Workers in India

AND

To work for the most effective use of science and the scientific method for the uplift and welfare of the society as a whole.

Rates of Advertisement

Front Page	Rs. 90/-	Back cover inside	Rs. 60/-
Front Page inside	Rs. 65/-	Full Page ordinary	Rs. 40/-
Back cover	Rs. 80/-	Half „ „	Rs. 25/-

1. Popular articles on and scientific technological subjects and on the social and economic problems of scientific workers are invited for publication in Vijnan-Karmee. Vijnan-Karmee offers full scope for discussion of various important issues facing the scientific workers and the society.

2. Signed articles and letters to the Editors from the scientific persons 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, 22 Havelock Square, New Delhi 3.

VIJNAN-KARMEE

विज्ञानकर्मी

VOL. IV] August, 1952 [No. 8

SCIENTIFIC WORKER IN INDUSTRY

The Association of Scientific Workers of India in a Resolution passed at the 3rd Annual General Meeting of the Association held on 4th January, 1950 at Poona viewed with grave concern the rapidly deteriorating economic condition of the country leading to mass scale unemployment and hindering the healthy growth of the community and considered that the solution of the problem lay in the industria isation of the country on the basis of a socialist economy. The Association further stressed the need for an ever increasing number of scientific workers and technologists for the proper economic development in the country and asked for expansion of the existing industry and establishment of new industrial undertakings, thereby increasing production in different spheres and cutting down considerably the import of consumer goods.

According to the Five Year Plan, it appears that the Government is going to rely considerably on the private sector for the expansion of industrial production during the period of the Plan as the resources of the State would be used for the development of agriculture, irrigation and power. The Planning Commission has not been able to state with any degree of certainty the progress which private industry would be able to make. The private sector would be free to pursue its normal activities. It was feared that sufficient capital was not forth-coming because of the danger of "nationalisation". Mr. D. P. Karmarkar, Deputy Minister for Commerce and Industry, has recently asked the Indian industrialists to shed the fear of nationalisation assuring them that the Government of India would help them by giving all facilities.

The Planning Commission has stated that when finance is the main handicap in the progress of industry, a free flow of foreign capital should be welcome,—particularly because it would ensure the supply of capital goods and technical know-how and make it possible to utilise foreign patented processes. It has stated that foreign investment should be permitted where new lines of production are to be developed or where special types of experience and technical skill are required.

The Association of Scientific Workers of India has not at all been pleased with the existing conditions of service offered by the industry to the technical staff. In a Resolution adopted at the Annual General Body meeting held at Calcutta in January, 1952, the Association has recommended to the Government that a Commission, composed of equal number of members representing the Government of India and the Association, be formed to study the general conditions of scientific workers engaged in various industries in the country. The Commission should submit a report along with their recommendations to the Government of India and the Association. It is feared that with the pressure of nationalisation of the industry taken off the conditions of the scientific workers in the industry would be worse than they have been so far and no time should be lost by the Government in appointing a Commission as asked for by the Association.

Another trouble appears to be brewing for the Indian scientific workers. With the facilities offered by the Government of India to foreign capital, industries run by foreigners are on the increase. The conditions of service in some of the foreign industries in India are not better than those experienced in the Indian industries. Things appeared bright when before the independence, the foreign industrial firms in this country had shown signs of Indianising their services. It appears that they have now changed their position and have given up the policy of employing Indian technicians in their industries. The Association of Scientific Workers of India, in a Resolution passed in January, 1951 at the Bangalore session viewed with grave concern this development as the foreign industrial firms had started to bring to India all types of personnel irrespective of their qualifications and experience, in many cases where Indian talent was available. The Association felt that it is necessary for the Government of India to take notice of this fact as it jeopardises the interests of the Indian scientific and technical workers and hinders the development of Indian scientific talent. The Association, therefore, recommended to the Ministry of Industry that a suitable machinery should be set up which would undertake a systematic enquiry into the matter and the employment of Indian technicians in the foreign industries in India.

We are glad that the position, as explained above, of the Indian scientific workers in industry was brought to the notice of the House of the People and the Council of States in the discussion which took place on the Indian Companies (Amendment) Bill which was brought up before the Parliament to grant certain exemptions to foreign oil companies who are to set up oil refineries in this country. Dr. Meghnad Saha, the famous Indian scientist and Member of House of the People said that foreign employees were being paid by the foreign industries five times as much as the Indians for doing the same kind of work and recommended that the Finance Minister should appoint an Enquiry Committee to find out the scales of salary which were paid to foreign employees in this country. The Finance Minister stated that he had no doubt that the weighty observations made by Dr. Saha would be taken into consideration by the Ministers concerned. The Finance Minister has further stated that the Government of India was seized of the general problem of training Indians and it was its intention to see that facilities were provided to young Indians for being trained in all enterprises managed by the foreign concerns. We are glad to have this assurance from the Finance Minister and this Association would, therefore, request the Ministry of Commerce and Industry to set up an Enquiry Body or Bodies as recommended by this Association without any delay. In order that the industry should thrive it is necessary to protect the scientific and technical workers.

HISTORY OF SCIENTIFIC METHOD

By

Dr. M. K. Haldar, Delhi College, Delhi

(Presented for discussion at a meeting of the I Met. Unit., Delhi Branch)

It has been commonly supposed that there always had been an opposition between the ways of philosophers and the ways pursued by the scientists. During the age preceding renaissance this divergence between science and philosophy was not present. The separation between science and philosophy dates back to Renaissance when a scientist was called a 'natural philosopher' as against a philosopher. But scientists could not and cannot avoid philosophical questions as to the nature of the ideas arrived at through different experimentations adopted by science neither could and can it avoid logical discussion into the implications of those ideas. But the contrast between the logical and experimental method is only a fake one. Science is both experimental and logical. In order that we may understand this point of view better it is necessary to go into the history of the development of scientific methodology. But that can only be done in bare outlines in such a short span of time.

Human thought as we find it to-day is the outcome of a long process of dialectical development stretched backwards through thousands of years. The most primitive records of man's reaction to the earth on which he trod can be found in magic and religion. Religion expressed his fear for the uncontrolable and inexplicable forces of nature and magic expressed his will to master over the natural and other forces. But these two aspects of his reaction were not well differentiated. For a flint worker the "flint possessed as it were a personality which was expressed precisely in its mode of fracture and which might be evolved by the appropriate address" consequently, in order to achieve his end the flint worker had to perform certain practices. This may also have been motivated for purposes of keeping the craft secret. Like the flint, the forces of nature also possessed personalities of their own. Perhaps for that reason the natural forces were deified as Gods and were associated with various acts they performed. Such a method of deduction and arriving at generalisations continued to dominate human thought for many millenia, even though there was considerable social and technical progress. As a matter of fact we find in early society that with the development of technology and craft there was a parallel growth of spells, ceremonies, magical rites and practices. Social factors were of course involved in their perpetuation but magical concepts were essentially the product of a view of nature and of a method and a mode of thought.

The first systematisation of thought was carried out in Greece. They endeavoured to systematise their knowledge by pursuing a dual course:—the study of processes and the use of logic as an analytical tool. The study of processes was limited by the Greeks only to the observational field. Experimentation hardly existed. Even medical schools like the school of Hipocritus based their generalisations on observation alone. They relied on a proper inference from observed facts and developed a generalised theory based upon inference. The cure of the disease was treated as confirmation of the theory.

In India too we find that thought was flowering in that direction. Records of such rudimentary thinking can be had from the earliest Vedas. The generalised concepts played a greater role. It was termed 'First Principle', which was the primary substance of which everything was made. This reliance on generalised concepts reached such a stage both in India and Greece that the whole of the perceptual field was declared as illusory. The influence cast by Plato and Aristotle in Greece and the Upanishadic 'Seers' in India was so great that even in the Middle Ages we find that the method of enquiry followed was mainly logical. Observations were certainly made but they were not utilised for inference and deducion. A priori propositions arrived at through intuition or insight were accepted. The field of enquiry was restricted purely to the sphere of formal logic. Such a method was not at all fruitful. It easily degenerated into very fantastic theories. Intuition or insight unveirfied and untested is not all a gurantee of truth. All that logic could do was finding out a concurrence among the data furnished through insight. The Bible was regarded as the source book of all Knowledge. Logic under such an environment became only a weapon for polemical discussion between various groups of Christianity and also between Christianity and other religions. It was this extreme reliance on logic that forced the Paduan Professor of Philosophy to refuse to look through Galileo's telescope—what could not be justified through logic could not be observed. Thus devoid of content, logic became barren—a rusted weapon. It had to be discarded before any further progress could be made. The reaction against the purely logical approach led first to various movements of revivalism. That is why we find a sort of antirationalist even among the renaissance people.

The progress of human thought cannot be understood apart from the progress of social structure. With the development of trade and commerce during the 14th and 15th century, the falsity of the mediaeval thought began to be apparent. Cartography, geographical and travel accounts began to demolish the mediaeval ideas of geography, habitation etc. These rather than the 'Copernican system' were really the beginning of ideas which shook man's faith in biblical mythologies and laid the foundation for further intellectual development. As against intuition, a priori postulates and logical proof, actual observations of facts with the help of instruments created a new pattern of thought, in which 'How' was the central theme. This in its turn broke the age old stagnation of centuries and paved the way for further development.

Leonardo da Vinci declared that "those sciences are vain and full of errors which are not born of experience, mother of all certitude, and which do not terminate in observation, that is, whose origin or middle or end does not come through one of the five senses." (Fragments—94, 95). Further elucidating the method he says' "I will make experiments before I proceed because my intention is first to set forth the facts and then demonstrate by reason why such experience is constrained in such fashion. And this is the true rule to be followed by the investigators of natural phenomena; while nature begins from causes and ends in experience, we must follow the contrary procedure, that is, begin from experience, and end with the discovery of causes." (Ibid. 85-88). And finally "No human investigation can call itself true science unless it proceeds through mathematical demonstration."[6] Leonardo was much ahead of his time. He reflects in an exaggerated manner the tendency of his period and the lines of further development.

It was to the genius of Galileo that the task of further elaboration and extension of the scientific methodology to the observational as well as experimental sciences fell. He resolved the data obtained through the senses into quantitative combinations and this he suggested was to be followed by deductive demonstrations from real constituents of elements by the use of mathematics and further these deductions were finally to be followed and confirmed by experiments whenever and wherever it was possible. In view of the limited development of science at that period Galileo's methodology could not render much help to some of the sciences. But even he had to pay homage to tradition. He had admitted certain categories of experience which could not be brought under investigation. Every object was dual in its character one capable of being investigated and other not. This though is nothing but a reflection of the limitation of science, gave rise to long drawn philosophical controversies in the later peried.

Galilean method was helpful only to the mathematical sciences. It could not be so helpful to biological science which stared as non-mathematical. The biological sciences derived their methodology from Bacon about whom Harvey wote that 'he wrote science like a lord-chancellor'. Bacon emphasised the collection of facts as of primary importance. He also enumerated the common sources of error affecting scientific investigations. The facts once collected were to be utilised for inference of a general theoretical nature. Bacon's inductive method helped the biological sciences.

The Copernican and Galilean method was further elaborated and developed by Newton. His method consisted of three stages :—(i) simplification of phenomena by experimentation which in other words is known as quantitative determination, (ii) mathematical elaboration of these simplified data, (iii) further experiments to verify and to obtain any additional information, which could be usefully utilised through mathematical treatment. After such treatment of a problem general laws could be deduced. Newton gave scientific generalisation the status of law, each law expressed certain mathematical behaviour and represented absolute truth. The scheme of things implicit in Newtonian method of investigation was however, never fully expounded by Newton and his own attitude was rather vaccillating; he changed his views on generalisations in view of the attack on his theory of light. He was essentially an empiricist, his criterion being more empirical than mathematical. Newtonian outlook established a certain duality of phenomena—'mathematical truths' and 'physical truths', something similar to the duality of Euclid in the Alexandrian period.

Till the end of the 18th century different branches of science continued to grow independently of each other. Chemistry and biology in particular relied more upon observation and experiment than on mathematics. The different branches of science developed their methodology independently though not irrespective of the growth and development of each other. There have been cases where method and technique of one science did affect the method and technique of another science. Thus Quetlet was an astronomer and was familiar with statistics. He applied statistics to a field of activity, which was not regarded as scientific at all—i.e. the domain of social activity—and thus laid the foundation of scientific sociology, and had very useful suggestions to make to the administrative bodies. With the discovery statistics the field of the application of mathematics increased. In the words of Quetlet "Chance, that mysterious, much abused word should be considered only a veil of our ignorance, it is a phantom which exercises the most absolute empire over the common mind accustomed to consider events only as isolated, but which is reduced to naught before the philosopher, whose eye embraces a long series of events and whose penetration is not led astray by variations that disappear when he gives himself sufficient perspectives." With the discovery and application of statistics one great difficulty in the way of the advancement of science was solved. Mathematics is known as the exact science. Every scientist for that reason feels himself gratified if he can give a mathematical rendering of his theory. Statistics has brought down mathematics from its abstract sphere to the level of experiments and observations. Experiment and observation are not only helpful for theory but essential to it. A theory without practice is empty. And a practice without theory is blind. Thus scientific discoveries are neither purely formal nor are they purely mechanical. They are dialectical in their character. Scientific research lays the foundation for scientific knowledge. Scientific research has come to occupy the most important place in our society; on the one hand it is inter-woven with socio-economic and political factors of any country, and on the other it is also the matrix of intellectual growth. It is purposive, in so far as it has short term or a long term aim, which is well defined and it is also guided by well established procedures. Many scientists have often remarked that 'chance' plays a very important role in discoveries. There is some justification for the statement but then 'chance' favours only those who, know how to court her '(C.Nicole) or as Pasteur said 'chance favours only the prepared mind.' But the irreducible surd of personal factor is always there. Chance has increased with the development of human knowledge. There is a greater probability of coming across 'Happy accidents' which are the basis of newer and greater development. Any scientist can increase such a probability through (i) carrying out intensive investigations as was done by Priestley or Faraday or any other great scientist (ii) innovating methods of investigations as was done by Black or (iii) testing of improbable hypothesis as was the case with Darwin or (iv) by making observations that are not dictated by any hypothesis as was done by Pasteur. These imply not only a certain amount of awareness of the field of investigations but also certain amount of faith in a project, i.e. planned work for the future.

A word or two about a very important problem though not intimately connected with our discussion of to-day. A very important issue has been raised by modern physics. I am referring to the epistemolological problems raised by the modern physicists. Heisenberg writes :- "the atom of modern physics can be symbolized only through a partial differential equation in an abstract space of many dimensions............ All its qualities are inferential; no material properties can be directly attributed to it. That is to say, any picture of the atom that our imagination is able to invent is for that very reason defective. An understanding of the atomic world in that primary sensuous fashion.........is impossible." But here we stop. We have already passed beyond the limits of our discussion. The problem that has emerged is still in flux and so incapable of being reviewed historically. We are to take the party of this or that scientist. Thus philosophy and science have again met though at a much higher level.

The Concord Between Science and Religion

BY

B. RAMAMOORTHY

Indian Agricultural Research Institute, New Delhi.

(*Presented at the symposium on Social Relations of Science Organised by Delhi Branch*)

The purpose of all religion is to create maximum of pleasure for one and all in the society and the how of it is a matter of science. There are many scientific aspects of agriculture, industry, transport, entertainment, medicine and power or energy that have contributed greately to human happiness. But, their effect has not been one of undiluted bliss for the society. As in the case of the atomic energy some of the great discoveries of science have been first known more for their destructive values than for their constructive purposes. This, I submit, is due to the adhoc way in which the creations of science are used to increase the pleasure of their users without at the same time paying attention systematically to the scientific aspects of pleasure sensation and the sciences of sociology and psychology that determine the means by which we seek pleasure and their effect on others in the society.

Perhaps it does not require an expert on mental physiology or psychology to appreciate that the physical motive for every one of our actions is to stimulate or try to stimulate a set of nerve centres that give us a sense of happiness or well being known as pleasure. We all know how simple it is to physically tickle and stimulate the nerve centres of a child to please him. But as the child grows and his senses become dullened to the ordinary tickle, he requires mental tickling like praise, making him feel important and the only possessor or a leader or making him feel that in a way he is unique and capable of finding out things kept away from him. Naturally as a next step, as he grows still older, he would try to please himself as the opportunities would permit him to do to assume self importance or uniqueness or reach what is kept away from him or excell others either by show of physical strength, mental alertness, endurance or even total indifference or the possession of rare or sundry things. Some of these means of stimulation go to produce great leaders or researchers, geniuses or aggressors or even idlers. But by proper training and education of the ch ldren and their wards, which is a function of religion, a selection of facilities can be provided as would enable the above instincts to be sublimed into a show of great endurance or a spirit of sacrifice and tolerance leading to a high sense of duty. Naturally as he grows still older, he will be inclined to adopt as a matter of habit usually such means by which he had long experienced stimulation during the opportunities of his childhood. But whatever means are used so far as the individual is concerned, it is only to stimulate his nerve centres and the actual means he employs are not of much immediate importance to him. Yet for the society these very means the individual employs are of great concern as some of them only are beneficial while others are harmful to the society. So this is a field where the science of human psychology helps to educate the parents and the children in such a way that only the right type of opportunities are provided to the children to build a better and happier society free from all destructive conflicts. This is therefore the science and method of all true religion wherein there is scope for research and progress. The state of this religion at any time depends on the extent of development of the science of pleasure sensation and its stimulation. Thus it is that the science of psychology and psychiatry helps to create pleasure on a collective basis in the society and helps religion in its fulfilment.

There is also a method suggested for the creation of pleasure on individual basis in the society. If by auto-suggestion and self hypnotism or physical and mental excercises called 'Raja Yoga', one can constantly stimulate one's own nerve centres to give constant pleasure and can also acquire great mental abilities, should it not be the hobby in which most of us should seek pleasure if we cannot get it by contributing in a mateiial sense to the good of the society otherwise called 'Nishkama Karmayoga'. If so, it will be one of the important functions of modern science to examine and explore fully the possibilities of 'Yoga' in this regard with an unbiased mind.

The above considerations thus enable us to visualise a society where science is playing its full part in creating pleasure both collectively and individually in the society. Only under these circumstances the achievements and creations of science in other branches like industry, transport, power or energy etc. are capable of being used for creating unblemished pleasure and undisturbed peace in the society. Then every achievement of science will be used by the user in a spirit of self-sacrifice called 'Nishkama Karma Yoga', who will be stimulating his own nerve centres by the fact that he is able to do so much good to the society.

Just as there is science in religion as shown above, there is also religion in science. The physical laws of the universe require that it should be getting greater and greater entropy or freedom from restrictive laws. But the very inception of life meant quite the opposite. It is the creation of greater order and more complex patterns from simpler substances. This cannot be unless some agency or Master Mind intervenes. Moreover, there must also be an agency to see that the natural laws applicable at one place are uniformly obeyed throughout the universe. In fact this is the very axiom on which science is based because otherwise, it would be meaningless to set about discovering the natural laws if there has been no mechanism at all to maintain them. Therefore the existence of a regulating master mind is not only an axiom but may rightly be called the religion of all sciences, which is implicit with all scientists.

We may differ when we attempt to attribute a definite nature, shape or size to this controller or Mind and in fact different religions differ naturally in this regard. But these differences are not of any consequence for purpose of present topic because the mere fact of its existence and that it controls the laws governing the ushering in and conduct of men in this world like the laws of every other phenomenon are sufficient for the present theme. This, however, by itself, does not enable us to know what that controller is exactly like and what its purpose is. It then only appears as an employer who had engaged us (all living beings) to conduct the wordly affairs giving in return as our salary different amounts pleasure for different people. What is then more natural than to suppose that the laws of social science will work here as well? These laws enable us to know the methods by which we can increase our happiness. If, for example we are dissatisfied with the amount of pleasure we are getting in this world, described above as salary should not a total strike of the wordly affairs in the form of 'Yoga' or 'Tapas' bring down the Master to yield to our demands or relatively speaking take us up to the Master. Needless to say, that no half hearted ones but total strikes of the worldly and selfish interests will achieve the goal of great and uninterrupted pleasure. As in the case of a dissatisfied employee, the means available are the method of appeal and petion (Bhakti Yoga and Karma Yoga) the method of strike (or Raja Yoga), sabotage (or sin) and resignation (Or suicide) Common experience shows that of these four methods, the first is safe and slow, the second sure or quick but difficult the third is momentous and detrimental while the fourth is uncertain and useless.

Thus, there in not only science in religion, but religion in science as well. In fact, there is no antithesis between the two. I have just attempted to show how the scientific approach to human affairs not only gives a better understanding of the man and his Creator but that it can also lead to a better social order free from all destructive conflicts both at the group and the individual level. To-day a narrow and unscientific or semi-scientific approach to human affairs and the ad hoc application of scientific achievements to increase the pleasure of their user without a proper investigation on the pleasure mechanism are the causes of displeasure, that is lurking in the society which I am sure science can rectify in all its entirety and bring to this world undisturbed peace. It is the duty of all scientists to strive to that end.

Standardization—A Social Service by Science

By

Dr. Lal C. Verman, Director, India Standards Institution, Delhi.

(*Presented at the symposium on Social Relations of Science organised by Delhi Branch*)

The modern conception of standards, though having its roots in the pre-historic struggle of man with the world around him, is of a comparatively recent origin. It is only during the past fifty years that methods for the preparation of standards and their implementation have been, so to say, standardized to an extent satisfactory enough for the modern-day needs of Industry and Commerce.

What are Standards

Standardization, according to an eminent thinker, is to industry and commerce what culture is to society; that is to say, just as rules of civilized behaviour regulate social intercourse of man, so does standardization help to regulate the conduct of commerce and trade in a smooth and efficient manner, and assists in improving productivity and efficiency of man and machine. Standards in the modern sense have at least a three dimensional spread, the three dimensions being Subject, Aspect and Level. The subject may be industrial, agricultural, commercial, etc ; the aspect may be a code of practice, a specification for quality, a method of test, a scheme of simplificatlon, and so on. The level is determined by the group of interests creating and using the standards. The interest may be of an individual buyer, a company, an association or trade, a nation or the world. In the case of a nation, we have national standards, such as Indian Standards, prepared by the Indian Standards Institution, and the world interest is served by international standards, such as those formulated by the International Organization for Standardization (ISO).

It must be recognized that for several reasons no standard can be regarded as final or absolute. Often a new standard dealing with a fresh subject is issued as a tentative standard for a prescribed period of time, for the purpose of being tested in actual practice. During this period experience of the industry and trade concerned is accumulated and pooled, and in the light of these data, the tentative standard is amended and altered to what may be termed, for sake of convenience a 'finalized' standard.

But even the finalized standards are by no means to be considered as permanent, for changes in industrial practice and in prevailing conditions, with passage of time, require that standards be continuously kept up to date. A standard is thus a live organism, and in common with other forms of life, it is subject to continual change and adaptation, to remain in harmony with its environments, and to maintain its utility to the community it serves.

How are Standards Prepared

A standard has to satisfy certain universally recognised basic requirements. For instance, it should be practicable for application in the day-to-day working of the members of the group, and should take into account the existing practice in trade or industry concerned. The procedure of standardization, therefore, involves an investigation to determine the existing state of knowledge and development in the field in question, determination of the need for creating the standard, securing of active participation by all interests concerned, and obtaining the maximum possible consensus among the groups concerned on every detail of the standard.

How are Standards Implemented

In most countries of the world, national standards are voluntary instruments for use by any and all parties. In certain countries, however, where the economic and political structure justifies, national standards are made mandatory by law. Still in other countries, the practice is to declare as mandatory particular standards dealing with specific subjects, or to require their enforcement in specific fields of national economy.

Implementation of national standards may also be encouraged through other means, such as by certification making. In India the certification mark, known as the AGMARK, has been in use in respect of agricultural products for the past ten years or so, and is administered by the Ministry of Agriculture under the authority derived from the Agricultural Produce (Grading and Marking) Act. Another legislative measure is now under consideration of the Indian Parliament for creating certification marks of products other than agricultural, under the title 'Indian Standards Institution (Certification Marks) Bill', which when passed, will be administered by the (ISI).

International Standardization

International standardization activity in the industrial field is the responsibility of the International Organization for Standardization (ISO), the membership of which now includes 31 countries. The International Electrotechnical Commission is the Electrotechnical Division of the ISO. The Indian Standards Institution is a member of the ISO Council, and the Director ISI, is the elected Vice-President of the ISO. The ISO works through some 75 Technical Committees, and the ISI participates in 28 of these committees, including ISO/TC 50 Shellac and ISO/TC 56 Mica, for which it holds the Secretariats.

PARLIAMENTARY NOTES

Trade Unions of Government Employees.

In a reply to Mr. S. C. Samanta in the House of the People on 30th June, 1952 Mr. V. V. Giri, the Labour Minister stated that the Government of India had recognised as many as 175 trade unions of the Government of India employees. He said that there were still a number of unrecognised unions of the employees and they would be registered as soon as they applied for registration through proper channel. In reply to a question whether the condition precedent to recognition of a trade union of Government employees was that they should belong to one class, the Labour Minister stated that the whole matter was now under considera- of the Government.

Coal Mines to be Mechanised

Mr. K. C. Reddy, Minister for Production, told the House of the People at question time on 30th June, 1952 that the Government of India had accepted the recommendations of the Working Party for the Coal Industry for progressive mechanisation of coal mines for securing quickly and on a planned basis the large increasing production of coal that might be found necessary in future. The Coal Board were directed to investigate the extent to which the mechanisation could be introduced in the existing mines and to permit the opening of new mines only on the condition that as far as practical the maximum possible use of machines for coal cutting and coal conveying was made.

Iron and steel production in India

Mr. T. T. Krishnamachari, the Commerce and Industry Minister, announced in the House of the People on 30th June, 1952 that the Government of India proposed to assist in the expansion of existing steel works in the country. The Minister also told the House that the establishment of a new steel works was under consideration. The Minister informed the House on 8th July, 1952 that India's present shortage was about 3 lakh tons of pig iron and over one million tons of steel. The Government was considering a number of alternative schemes for increasing the iron and steel production in the country. On 29th July, 1952 the Minister said that the Japanese Industrial Mission which recently visited India had made some proposals in regard to the modernisation of steel plants and setting up of pig iron industry in India. The proposals had not taken any shape so far.

UNESCO Assistance for India

On July 15, 1952, Mr. K. D. Malaviya, Parliamentary Secretary to the Education Minister, told Sardar Hukam Singh that Unesco had agreed to provide ten specialists for work in laboratories and institutions in India. Many of these experts were from Germany and six of them had already arrived in the country. Negotiations were in progress regarding the rest.

Indelible Ink

It would be recalled that the use of indelible ink for marking the thumb or fingers of the voters in the last General Election was compulsory. The Law Minister, Mr. C. C. Biswas, in a reply to Mr. S. C. Samanta, stated on 15th July, 1952 that the approximate cost of the ink purchased by the Government for the last General Election was Rs. 1,84,400. He said that a few complaints were received by the Election Commission regarding the easy removal of the stain of the ink but it was found that excepting in a very few cases of persons with abnormally resistant skins, the indelible ink mark, if properly applied, could not be erased.

Central Health Council

The Health Minister, Rajkumari Amrit Kaur, stated in reply to a question on 22nd July, 1952 that the Government of India was actively considering a proposal to establish a Central Council of Health with a view to coordinate and develop measures for the improvement of the public health in India.

Oil Refineries

The conditions under which the oil refineries were to be set up in India came up for discussion in the House of People on 17th July, 1952 when the Indian Companies (Amendment) Bill was passed by the House. This Bill would enable the Government of India to grant certain exemptions to the oil companies who have recently been allowed to start oil refineries in this country. Dr. Meghnad Saha said that though the country had attained political freedom there was no economic freedom. He stated that in foreign companies in India the foreign employees were being paid five times as much as the Indians for doing the same kind of work. He suggested that the Finance Minister should appoint an Enquiry Committee to find out the scales of salaries which were paid to foreign employees in this country. The Finance Minister, Mr. C. D. Deshmukh, referred to the undoubtedly weighty observations made by Dr. Saha and said that he had no doubt that the Ministers concerned would take them into consideration. He assured the House that the Government would take care to see that qualified Indians were employed at all levels including the technical level by the oil companies. A condition was laid down in the agreement in regard to training of Indians.

Further discussion took place on this subject when the council of States took up consideration of the Bill. Dr. S. S. Sokhey said that it was true that Indians should be grateful to America giving technical education to the Indian students. It should be remembered, however, that technical knowledge needed to run factories and plants was not to be had in the universities. He suggested that foreign capital should be invited on the understanding that a certain number of persons would be given technical training in the plants. The Finance Minister, replying to the debate in the Council of States, stated that the first thing which should be realised was that India was short both in capital and technical skill. The number of high-level oil technicians in the world was limited and confined to certain countries only. It might be that after ten or twenty years Indian scientists might be able to build up a corps of oil technicians. He said that the Government was seized of the general problem of training Indians and it was its intention to see that facilities were provided to young Indians for being trained in all enterprises managed by the foreign concerns.

Compulsory sterilisation

The House of the People took up for consideration on 30th July, 1952 the Bill of Mr. S. V. Ramaswamy seeking to prohibit lepers, syphilitics, the insane, the congenital idiots and the like to bring forth children in the world. The Bill recommended sterilisation of all persons who were declared by a Medical Board to be unfit to procure childeren. Mr. Ramaswamy said that his Bill was based on four considerations, namely, eugenics, moral, and religious, social and public health, and financial. Rajkumari Amrit Kaur, the Health Minister, opposed the measure and said that compulsory sterilisation was not the way of achieving the object of the Bill. Government was extremely anxious to eliminate diseases like leprosy and syphilis. The latter disease was absolutely curable by modern methods of medicine. Regarding leprosy medical opinion in the world was that it was not hereditary. It has been eliminated in many countries and if funds were made available she could guarantee the elimination of this disease from India also. As regards insanity, the Health Minister stated that the stage had not been reached where it could be said what type of leprosy was hereditary. In view of the medical evidence that was available she considered the Bill to be unnecessary and wholly unacceptable from the practical and scientific point of view.

NOTES AND NEWS

Private Industries

Mr. P. V. Mehta, the new President of the Association of Indian Industries, stated at the sixteenth Annual General Meeting of the Association held in Bombay on 30th July, 1952 that undue State interference in the working of private enterprise would neither assist nor promote the healthy growth of our industries. It appeared that the Government was trying to become a major partner in industry without any liabiliry for loss. Mr. D. P. Karmarkar, Deputy Minister for Commerce and Industry, who inaugurated the General Meeting of the Association, explained how the Government of India's attitude towards private enterprise had been quite helpful and constructive in character. He advised the private enterprise not to suffeer from 'fear psychosis' on account of the nationalisation policy.

The Central Road Research Institute, New Delhi

Another National Laboratory has come into existence during July, 1952. The Central Road Research Institute was opened by the Prime Minister on 16th July, 1952. The foundation stone of this Institute was laid by Mr. N. Gopalaswamy Ayyangar, the then Minister for Transport, on 6th September, 1950. The functions of the Central Road Research Institute are fundamental research on the behaviour of materials used in road construction, research connected with standards and specifications for roads and road building plants and machinery and other related subjects. The Prime Minister in his opening address pointed out how we were not marching in step with the workers and how we were placed at a distance from them. He laid stress on the necessity of going ahead with the work without waiting for the construction of palatial buildings for the laboratory. He stressed the importance of compulsory manual work for all and thus revive faith in the dignity of labour. Dr. S. S. Bhatnagar, Director of the Council of Scientific & Industrial Research and Secretary, Ministry of Education, Scientific Research and Natural Resources, was congratulated for the expedition and despatch with which the building had been constructed by getting over the "P.W.D. Mentality" referred to by the Prime Minister. Dr. Ernest Zipkes of Zurich is the Director of the Institute and Dr. R. K. N. Iyengar the Planning Officer

Grow More Food Enquiry Committee

The Grow More Food Enquiry Committee with Mr. V. T. Krishnamachari, member of the Planning Commission as the chairman, has submitted its report to the Government. The Committee after assessing the results of the Grow More Food Campaign has come to the conclusion that the campaign has not fully achieved the results expected of it. The two main reasons for its failure were, the narrow and restricted scope of the campaign and the various changes in emphasis made from time to time in its objectives. The Committee has, however, recognised that the campaign, limited as it was, has contributed to the spread of knowledge of the possibilities of improved agriculture among a wider section of the agricultural population in India than in any previous years. The Committee has laid stress on the fact that India's food problem is much wider than mere elimination of food imports. The problem is of bringing about such a large expansion of agricultural production as will assure to an increasing population progressively rising levels of nutrition. The campaign for food production should be conceived as a part of a plan for the most efficient use of land resources by the application of modern scientific research. The Committee has recommended that Extension Services should be set up all over the country within the shortest possible time.

International Rabies Conference

The First International Rabies Conference, sponsored by the World Health Organisation, was inaugurated at the Pasteur Institute, Coonoor on 14th July, 1952 by Mr. Sri Prakasa, Governor of Madras. Mr. Sri Prakasa mentioned that medicines and doctors were very expensive and something should be done to bring them within the reach of the common man. He paid tribute to the World Health Organisation for having induced 18 nations to agree to improve the health of the human race despite apparent differences of creed and colour. He advised the scientists to concentrate on the health side of life and lay emphasis on preventive rather than curative medicines. Dr. N. Veeraraghavan, Director of the Pasteur Institute, Coonoor welcomed the delegates attending the conference. Dr. M. M. Kapalan, Chief Veternary Officer, W. H. O. Division of Epidemiological Services, Geneva stated that eradication of rabies was a challenge problem and the conference was meant to discuss the recent advances in the research on rabies. The specialists were to visit Indonesia, Thailand, Burma, Malaya, and Iran for giving technical advice to the people of these countries to combat rabies.

D.D.T. Factory in India

The Government of India, with the help of the World Health Organization and the United Nations International Childrens' Emergency Fund is to set up a D. D. T. Factory in Delhi. The entire output of the factory will be devoted to the development and expansion of public health campaign in the country. The factory, with the production capacity of 700 tons of D.D.T. a year, is expected to be in full production by June, 1954. The UNICAFE is to supply plant and equipment for the factory and the WHO technical aid in the form of training facilities and experts. A local chemical firm will be associated with the setting up of this factory.

Operation Locusts

India has declared war on locusts. There have been reports of the visits of several locust swarms from Iran and Pakistan across the border and it is also reported that these aliens have not returned to their country but have chosen the hospitality of Jodhpur, Bikaner and Jaipur divisions of Rajasthan for breeding and egg laying. New swarms have also been sighted from the Pakistan side. It is, therefore, feared that the trouble from locusts would be very grave during the next few months. The Government of India, is however, reported to be fully armed to meet any eventuality. The Ministry of Food and Agriculture have made Jaisalmer the base for the operation and have deputed their Locust Officer to be there in-charge of the campaign. He will have at his command two jeep cars, taken over by the Government of India from the Technical Co-operation Administration of the U. S. Government, three spraying fixed-wing planes and other equipment. An agreement has also been made for the supply of more jeeps, power sprayers and dusters and wireless sets for combined ground air operations. Reports are that the locust invasion this year is going to be one of the worst during the last hundred years.

The American Association for the Advancement of Science

FACES ITS SOCIAL RESPONSIBILITIES

(Reproduced from Impact of Science on Society Vol. III No. 1)

A significant report on the basic policy and function of the American Association for the Advancement of Science is now under consideration by the Association's Council. It involves nothing less than a complete reorientation of both purposes and policy, with reduced emphasis on research in the individual sciences and major attention in the future to two other purposes, the unity of science and the relation of science and society.

The report is signed, unanimously, by the 11 members of the Executive Committee and by nine special consultants. It is the result of a three-day special session held at Narriman. New York, in September, at which the major problems of the Association were freely discussed, and especially the problem of unwieldy size as revealed in a membership of nearly 48,000 with 225 affiliated or associated scientific societies whose total membership exceeds half a million. Attendance figures at the annual meetings now run into many thousands and the numbers of papers read into hundreds. As the report states. "We have reached the stage where one over-all organization cannot effectively deal with the intensive and specialized interests of individual branches of science. The technical papers that present detailed results in ......(the individual sciences)......can more properly be presented before meetings sponsored and arranged by the appropriate professional groups".

Instead, the report continues, the AAAS has a larger task to perform: "In view of the present size and complexity of science, in view of the seriousness and importance of the relation of science to society, and in view of the unique inclusiveness of the AAAS, it seems clear that this organization should devote more cf its energies to broad problems that involve the whole of science, and to the relations of science to our society as a whole.

"This increased emphasis on broad problems should lead to new activities in wider fields, but it also requires a modification of what the AAAS tries to do within and for science. Thus it seems clear that a major present opportunity for the AAAS within science is to act, in all ways that promise useful results, as a synthesizing and unifying influence. As an obvious example, this indicates meetings at which one branch of science is interpreted to the other branches of science, meetings at which are stressed the inter-relations between the branches of science, meetings which cultivate borderline fields, and meetings of which the unifying theme would be central problems whose treatment requires the attack of several disciplines.

"This opportunity to try 'to put science back together' seems so important that it may be wise to modify the existing statement (quoted in the next paragraph) of the purpose of the AAS to include more specific dedicatoin to synthesizing activities. Such activities are, of course, wholly consistent with the present statement of purpose; but if in fact this is, as some of us feel to be the case, the major present internal opportunity of the AAAS, then it deserves explicit statement.

"Finally, this same emphasis on over-all problems demands that the AAAS not only recognize but attack the broader external problem of the relation of science to society. It seems to us necessary that the AAAS now begin to take seriously one statement of purpose that has long existed in its constitution. To quote:

"The objects of the American Association for the Advancement of Science are to further the work of scientists, to facilitate co-operation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.'

"It is clearly recognized that the diffusion among the general public of knowledge about science and its methods is a difficult, slow, and never-ending job. It would require staff, money, patience. and wisdom. It would involve failures, and it could at some points strain the professional sensitivities of scientists. But in our modern society, it is absolutely essential that science—the results of science, the spirit and importance of basic research, the methods of science, the spirit of science—be better understood by government officials, by businessmen, and indeed by all the people.

"We enthusiastically reaffirm our belief in the statement quoted just above as the culminating object of the AAAS; and we favour the adoption, after suitable study, of activities in this field as a major active interest of the AAAS.

The report is still to be acted upon and put into effect. If that is done, the re-orientation opens a new era for science and for society as well. It is a long step from the past isolation of science under the honoure of "science for sake of science" to science in the service of man.

CENTRAL EXECUTIVE COMMITTEE MEETING

A meeting of the Central Executive Committee of the ASWI was held on May 15, 1952 at New Delhi. The following are some of the important decisions taken:—

Affiliation of the Scientific Workers Association, Kanpur.

The C.E.C. approved of the following terms of affiliation between the Association of Scientific Workers of India and the Scientific Workers Association, (Indian Ordinance Service), Kanpur. These terms are subject to final ratification by the Council.

1. The words "Affiliated ASWI" shall be suffixed to the name of the Association.

2. Membership qualification clauses and the rates of subscription etc. laid down in the Constitution of the Association need not be amended for the purpose of affiliation.

3. The affiliated body shall, whenever and if necessary, approach the C.E.C. of the ASWI in case of deputation, negotiation, etc. with the Ministry of Defence and/or any such authority as may be mutually agreed upon for settlement for any Trade Dispute in which case full powers for settlement, shall be vested in the C.E.C. of the ASWI. The affiliated body shall advise the C.E.C of the ASWI, in respect of the minimum acceptable terms/demands in the dispute and may, nominate its own representative/representatives in the deputation.

4. 15% of the total membership of the affiliated body shall be entitled to rights and privileges of the ordinary members of the ASWI.

5. The affiliated body shall pay an annual affiliation fee of Rs. 10/-only to the ASWI together with an annual contribution of Rs. 12/- per member. The membership as on the 31st March every year will be reckoned for this purpose.

Editorial Policy of Vijnan-Karmee.

The C.E.C. decided to publish articles bearing on the following subjects in order of preference :—

(i) Scientific workers vis a-vis society.

(ii) Living conditions of scientific workers.

(iii) Activities of the World Federation of Scientific Workers and reports of Branches and units of ASWI and scientific workers' associations in other countries.

(iv) Popular articles on scientific subjects.

(v) Book reviews.

World Federation Executive Council Meeting.

The Executive Council of the World Federattion of Scientific Workers was scheduled to meet on 22nd & 23rd March 1952 in U.K. The meeting however, could not be held there due to the British Government not granting necessary visas to the visiting scientists. In this connection the C.E.C. adopted the following resolution :—

The Central Executive Committee of the Association of Scientific Workers of India regret to note the refusal of the British Govt. to grant visas of entry into England to all non-British members of the Executive Council of the World Federation of Scientific Workers for attending the meeting of the Executive Council on March 22 & 23, 1952 and agrees with the views expressed by the World Federation Office in their press statement issued on March 14, 1952 that "the refusal of the British Government to allow the foreign members to attend the Council is an interference with the international collaboration of scientists and thereby a serious blow to the growth of mutual understanding between people."

ACTIVITIES OF THE BRANCHES

Bombay Branch

The Annual General Body Meeting of the Bombay Branch was held on 5th June, 1952 with Shri Y. N. Kotwal in the chair. The following Executive Committee and office bearers were elected for 1952-53 :—

President	Shri Y. N. Kotwal
Vice-Presidents	(1) Dr. R. G. Chitre
	(2) Dr. K. Ganapathi
Secretary	Shri N. K. Verma
Joint Secretary	Shri R. M. Adhikari
Treasurer	Shri M. K. Habbu

Members of the Executive Committee—

(1) Dr. P. D. Kulkarni
(2) Shri Y. S. Nimbkar
(3) Shri D. R. Sukhtankar
(4) Dr. G. B. Rama Sarma
(5) Dr. Mrs. Kamal Ranadive
(6) Shri L. P. Borkar
(7) Shri P. T. Tikekar
(8) Dr. Vinay Kumar Vora
(9) Dr. Usmani

Dr. B. R. Shah and Shri Juvale were elected as auditors.

The following suggestions were received for further development of the Association :—

(i) Efforts should be made to start evening classes in science for the benefit of young Technicians who are unable to attend day schools and colleges. Help of University and Heads of Colleges and technical institutes should also be sought.

(ii) Information be gathered about foreign trained Indian scientists who were sent abroad by the Government. It was felt that many of them were badly placed inspite of their high qualifications.

(iii) Protest should be made against the offer of Rs. 60/- per month for a B.Sc. in a post advertised by Institute of Science, Bombay.

(iv) The President and Vice-President of Bombay Branch may approach the Labour Minister Bombay State to discuss the question of recognition.

(v) Congratulations be sent to Major Gen. Sahib Singh Sokhey on his nomination to the Council of State.

The Secretary also presented the Annual Report for 1951-52. The branch held one General Body Meeting, ten Executive Committee meetings and five public lectures during the year. The public lectures dealt with the following subjects :—

(i) Water supply with special reference to the city of Bombay by Shri N. V. Modak, Special Engineer, Bombay Municipality. Shri S. K. Patil, the Mayor of Bombay presided.

(ii) Science in the Soviet Union by Dr. Baliga. Major Gen. S. S. Sokhey presided.

(iii) Conquest of Malaria in the State of Bombay by Dr. Vishwanathan, Assistant Director of Public Health Government of Bombay. The Hon'ble Dr. M.D.D. Gilder, State Minister for Health presided.

(iv) Genetics by Prof. J.B.S. Haldane. The lecture was held under the joint auspices of the Bombay Branch ASWI and Staff Association of G. S. Medical College.

(v) Optimism in Cancer work by Dr. E.W. Cowdry. Dr. Mody presided.

Besides these two social functions were also organised.

The Branch also represented cases of some members of the Hafkine Institute to the State Government. But no satisfactory progress could be made because the Branch is not recognised by Bombay Government. Efforts are being made to obtain the recognition.

A New Unit at Calcutta

A new unit has been formed at Jadavpur, Calcutta comprising of members from the Central Glass & Ceramic Research Institute, the College of Engineering & Technology and the Indian Association for the Cultivation of Science. Mr. S. B. Roy (C. G. C. R. I) & Prof. M. M. Mukerjee (C. E. & T.) were elected Secretary and Joint Secretary respectively.

Naihati Branch

The Annual General meeting of Naihati Branch was held on 11th June, 1952. The following two resolutions were adopted :—

1. "The members of the Naihati Branch of the ASWI sincerely congratulate Mr. P. K. Adhikari, Chief Chemist, M/S Jenson & Nicholson (I) Ltd. for his brilliant and successful career as a paint technologist on the eve of his departure for U.K. with a view to study the recent advances made in the manufacture of paint, varnish, cellulose, synthetic resin and allied products and to apply the same in the development of our products. We wish happy days overseas."

2. "The members of the Naihati Branch of the ASWI accord their best congratulations to Dr. D. C. Tapadar on his recent admittance to the degree of Doctorate of Philosophy from the University of Calcutta on his thesis about the Improvement of Paper Technology."

The Secretary presented the report of the activities of the branch during the year 1951-52. The branch held seven General Body Meetings, seven Executive Committee meetings and one Sub-Committee meeting. The Secretary deplored that inspite of the fact that the branch was active during the year and had adopted many useful resolutions, the membership was still falling. He analysed the two types of reasons that are put forward for not renewing the membership.

Some people think that the Association is not strong enough to stand behind a member if there was any case of discontinuation of service or of similar nature occurred due to an individual's activities within the Association. For them he argued that it is not the Association which will stand behind them but it will be the members who will have to fight for this and if the members have got solidarity and fellow-feeling among themselves then it is certain that they will not be victimised. The platform of the Association could be used for quick mobilisation of opinion of the scientific workers all over India.

Another type of members think that to pay the subscription is nothing but waste of money as the Association has done nothing to improve their economic status as yet. To this the Secretary argued that to improve the social and economic status of scientific workers is not so easy a job as one may think. To achieve this a factual survey of the living and economic conditions of scientific workers is necessary so that a proper case may be presented to the Government. This Association with its peculiar character was started by only a few members but today its strength is about 1500. It is in a sound position and is connected with similar organizations in other countries through the World Federation of Scientific Workers to which it is affiliated. In the end the Secretary appealed that in order to exert the full strength of the Association towards the solution of country's problems, it is necessary that its membership must embrace all those capable of contributing to its objects. Members should not think that their duty is finished as soon as they have paid their subscription. They should thoroughly go through aims and objects of the Association and try their best efforts to materialise their ideas and if possible to impress the same upon those who are not practising.

Regd. No D.—16 FOUR ANNAS

Published by Dr. P. K. Kichlu and Printed at the University Press, University Buildings, Delhi 8

VIJNAN-KARMEE

विज्ञानकर्मी

official organ of the

ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

Vol IV.] SEPTEMBER, 1952 [No 9


"His meals are always
cooked with DALDA
for daily energy"
DALDA supplies the
energy-giving fat you need
in a balanced diet
DALDA
HVM. 167-50

CONTENTS

VIJNAN-KARMEE

is the official organ of the Association of Scientific Workers of India
(Registered under the Indian Trade Unions Act, 1926)

Published monthly, distributed free to the members.
Annual Subscription Rs. 3/- Post free.

THE OBJECTS OF THE ASSOCIATION

ARE

To improve and safeguard the economic interests, the conditions of life and the professional and social status of all Scientific Workers in India

AND

To work for the most effective use of science and the scientific method for the uplift and welfare of the society as a whole.

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 offers full scope for discussion of various important issues facing the scientific workers and the society.

2. Signed articles and letters to the Editors from the scientific persons 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, 22 Havelock Square, New Delhi 3.

VIJNAN-KARMEE

विज्ञानकर्मी

VOL. III] SEPTEMBER, 1952 [No. 9

BAN THESE DEADLY WEAPONS OF WAR

The first use of the atom bomb by the United States in the Second World War caused a stir among the population of the different countries and led to create a feeling for the supremacy of the scientists. The atom bomb scientists were held in great esteem by those who won the war on account of the use of a deadly weapon which the scientists had helped to bring out. All the good work done by the scientists upto that time in the different spheres of activities of human life faded into insignificance before this startling performance. Very soon afterwards, however, after the glare of the atom bomb had died down, thinking people began to consider the effect of such deadly weapons and the more they thought about it they realised the deadly implications of this new source of energy if it was used in the wrong direction. After the atom bomb came the hydrogen bomb, a still deadlier weapon. Upto now only the United States of America knew the secret of the atom bomb and they had the resources to collect together a pile of these for use in any adverse condition. Now it is reported that other countries have reached that enchanting position and could boast of having atom bombs. The United Kingdom is to give a trial to their atomic bomb which they have built up. The trial is to be given in Australia during the course of this year. There are reports that U.S.S.R. has been successful in fabricating the atom bomb. It is also reported that Argentina is aiming to have an atom bomb. It appears, therefore, that the atom bomb is not any longer the speciality of a particular nation. There is reason to believe that very soon there will be a race among the nations for the first place in the matter of atom bombs. Added to the atomic weapons biological warfare is also turning up its head and reports are that it has been used by the United States of America in the Korean war though there have been denials from the U.S.A. authorities. It has also been reported that napalam bombs have been used in the Korean war and that the production of such bombs has been going on on a large scale in the United Kingdom.

The Association of Scientific Workers of India at their meeting held at Calcutta in January, 1952 endorsed the resolution of the World Federation of Scientific Workers adopted at their Second General Assembly. The Federation had referred to the use of the hydrogen bomb and other atomic weapons and methods of biological warfare and pointed out the incalculable effects it will have on the civil population of the countries involved, endangering the whole future of civilization. The Federation urged the Governments of the major powers to exercise a fresh initiative through the proper international channels for the re-opening of the question of the international control of atomic energy and the banning of all weapons of mass destruction.

The Association has been following up the demand for the banning of all the deadly weapons of war and the Central Executive Committee of the Association at their meeting held on 15th May, 1952 passed a resolution on napalm bombs and germ warfare. Dr. B. C. Guha, the President of the Association, referred to the dropping of napalam bombs and the reported use of germs in the Korean war. It was resolved that the Government of India should be approached for raising their voice against the use of these horrible weapons of mass destruction and for having them banned by the United Nations. The President of the Association was requested to bring the matter personally to the notice of the Prime Minister. It would be recalled that Mr. Jawaharlal Nehru, the Prime Minister, condemned the use of napalam bombs in his statement on foreign policy in the House of the People.

We have in this issue elsewhere given an account of the proceedings of the meeting of the Executive Council of the World Federation of Scientific Workers held in Vienna on 31st May, 1952 under the chairmanship of Prof. Frederic Joliot-Curie. The Council heard an account of the employment of bacteriological warfare by the United States in China as given by Professor T'U Chan Wang, Deputy Secretary General of the Chinese Federation of Scientific Societies. The Executive Council adopted a resolution that the President of the

Federation should address letters to the affiliated organizations urging them to express their effective opposition to biological warfare, to urge the United States Government to sign the Geneva Protocol of 1925, and to request the United Nations to pass a resolution condemning the use of biological weapons.

We do not for a moment believe that the scientific worker is to blame for the production of these deadly weapons. He has been involved to become one of the agents, inspite of himself, in this unholy alliance. Upto now the scientists cared only for the progress of science and did not worry themselves about the ways in which the results of their scientific achievements were utilized. They were generally satisfied that they had by their work helped the society in general to get the advantages of the scientific progress. It is only after the production of the atom bomb and other deadly weapons used for mass destruction that the scientists realized the necessity of keeping themselves alert as to the uses to which their scientific endeavours were put by the unsocial elements in the different countries. Dr. Rajinder Pal in his address on 'Impact of Science on Society' at the symposium organised by the Delhi Branch of the Association of Scientific Workers of India, reproduced elsewhere in this issue, has rightly pointed out that the technologial advance has given us confidence that this planet could produce far enough for the subsistence and employment of every one inhabiting it and to fulfil the dream of a world free from want and fear. The scientists have shown the possibilities and if the sociologists, the politicians and the man in the street help to build up and not to destroy, by misusing the scientific advance for the preparation of deadly weapons for mass annihilation, there is a possibility of a happier and fuller life.

OUR INSTITUTES

Central Laboratories for Scientific and Industrial Research Hyderabad

Scientific research and application of scientific knowledge to industry and day to day practical problems of life are necessary today for raising the standard of living of the people and to provide them with fuller, healthier and happier life. In India where industrial development is at a low level, it is highly necessary to organise scientific and technical research on an extensive scale. A beginning with this work has been made by the Council of Scientific and Industrial Research and the Ministry of Natural Resources and Scientific Research, Government of India through the establishment of a chain of National Laboratories.

The question of regional research laboratories in addition to the National Laboratories was discussed in a joint meeting of the Council of Scientific and Industrial Research of the Government of India and the Hyderabad Scientific and Industrial Research Board, held in Hyderabad and it was felt that such laboratories will be useful in tackling urgent local problems. The institution of the National Research Laboratories has not materially altered the situation, as these could not in the nature of things be expected to find time to devote close attention to regional problems as they will be busy with bigger problems of a national character.

Hyderabad being rich in raw materials especially in vegetable oils, coal, various types of clays and a number of valuable minerals, it was decided to establish Central Laboratories for Scientific and Industrial Research in Hyderabad. It is intended that the Central Laboratories should work in the closest collaboration with the National Research Laboratories and thus contribute in a co-ordinated manner to the regional and ultimately the national development of industries.

The original orders for the establishment of the Central Laboratories were issued in October, 1944 and the grants of Rs. 7 lakhs for buildings and Rs. 8 lakhs for equipment were sanctioned in 1945. The grant for buildings was subsequently increased in 1947 to Rs. 25 lakhs. The assets of the Hyderabad Industrial Laboratory valued approximately at Rs. 4 lakhs were amalgamated with the Central Laboratories.

The final organisation of the Central Laboratories drawn up on the basis of the National Research Laboratories in India and other countries and taking into consideration the special regional requirements of Hyderabad State were approved at a meeting of the Governing Body held on 8th March, 1949.

The plans of the buildings based on the National Research Laboratories were finally approved on October 12th, 1949.

RESEARCH PROGRAMME

The research that is being carried out in the Central Laboratories for Scientific and Industrial Research is divided under various sections which aim to utilise the local raw materials in relation to the existing industries of the Hyderabad State.

Analytical Section:

There is an Analytical Section in the Laboratories. The main function of this Section is to help various industrialists and the Government Departments by giving them laboratory facilities and carrying out for them routine analysis and tests.

Operational Research Section.

Operational Research is a recently developed technique and covers the field of utilisation of scientific research. It is specially useful for countries which are technically backward and where the maximum efficiency and maximum results are desired from the limited resources that are available.

The Central Laboratories is the first laboratory in India to start this Section. It is in its early stages. As the research in the Laboratories is growing from the bench to the pilot plant stage, this section is also growing. The research that will be carried out in this Section will help in effective translation of scientific research into industrial utilisation. This Section has also arranged special meetings of various industries to bring out closer cooperation with them so that they should know about the researches that are carried out at the Central Laboratories and they should be able to take advantage of the completed research of the Laboratories for industrial utilisation.

Vegetable Oil Section

The investigations that are carried out in this section are:

(i) Studies of the Custard apple seed oil.
(ii) Investigations of Ram Phal seed oil which is closely related to the Custard apple.
(iii) Preparation of sodium ricinoleate.
(iv) Keeping qualities of vegetable oils.

Fuel Section

This section at the moment is carrying out laboratory investigations on the following:

(i) Low-temperature carbonisation of Hyderabad coal.
(ii) Complete gasification of Hyderabad coal.
(:ii) Fluidization of coal.
(iv) Briquetting of coal and
(v) Washability of Hyderabad coal.

Ceramic Section

The work being carried out aims at systematic study of the different types of clays in Hyderabad is being carried out in collaboration with the Mining and Geological Survey Department of the Government of Hyderabad. The fundamental data that will be available at the completion of this programme of research will help the various ceramic industries that are already in existence and will further enable them to utilise industrially particular clays that are available as raw materials for ceramic industry.

The problems under investigation are:

(i) Preparation of refractories,
(ii) manufacture of electric insulators
(iii) manufacture of sand lime and clinker bricks.

Heavy Chemicals Section

The researches in this Section aim at the utilisation of the locally available material such as clays, felspar, naturally occurring salt pyrites, bones etc., for the manufacture of chemicals and fertilizers which at the moment are being imported from outside the State. In the course of research various methods of the manufacture of alumnia, ferric salts, tannery salts, potassium hydroxide, sodium sulphate and manganese sulphate have been completed and they await industrial utilisation.

Other problems that are being worked are:

(i) the manufacture of active charcoal from groundnut husk
(ii) manufacture of glue and gelatine from bones and
(iii) manufacture of fertilizers from bones.

Pharmaceutical and Drug Section

The problems that are being investigated in this Section are:—

(i) Utilisation of local raw materials.
(ii) Preparation of sesamin from seasamum oil and synthesis of other organic insecticides.
(iii) Conversion of brucine from strychnine.
(iv) Preparation of menthol from Indian turpentine.
(v) Problems of syntheses—At the moment the problems that are tackled are the syntheses of Pethidine, Metopon and Ephedrine.

Fibre Research Section

This Section is investigating the problems of preparation of vanillin from lignin, purification of textile waste for use in acetate rayon industry.

Bio-Chemical Section

The work is carried on the preparation and manufacture of various bio-chemical products such as lactic acid by fermentation and preparation of calcium levulinate and the manufacture of citric acid. For the above problems molasses are being used as the starting material.

Calcium levulinate is a very important substance for use as an antifreezing mixture in liquid fuels apart from its other uses.

Problems of Research

The researches that are being carried out in the laboratory are of three categories, laboratory research, pilot plan work and industrial research.

I. In the first category are the problems which are at the laboratory research stage. They aim at either developing new methods for the utilisation of raw materials or improving the already known and existing methods to suit local conditions.

II. The second category of problems is where researches have reached the pilot plant stage which means that the special problems of industrial manufacture are being investigated, so that the research of the laboratory could easily be handed over to the industry.

The researches that fall under the second category i.e. the pilot plant stage are given below:

(i) Low temperature carbonisation of Hyderabad coal.
(ii) Manufacture of dehydrated castor oil.
(iii) Erection of model brick plant.
(iv) Preparation of fructose from cane sugar.
(v) Manufacture of manganese sulphate.
(vi) Manufacture of glue from bones.
(vii) Preparation of food yeast.
(viii) Extraction of strychnine.

III. The problems of the third category are those that either arise out of the existing problems of industry and research carried out in the laboratory or they aim at fuller and greater utilisation of the existing raw materials. Failure to fully utilise raw materials proves very uneconomical and emphasis is therefore laid on devising improved methods as we cannot afford to waste any raw materials and their by-products considering the precarious nature of our economy.

These include the problems like:

(i) Solvent extraction, refining and hydrogenation of oils.
(ii) Utilisation of cake for edible and industrial purposes.
(iii) Systematic survey of Hyderabad coals and
(iv) Distillation of coal tar and synthesis of liquid fuel. It is intended that these problems will be taken up in the Laboratories at a later stage.

Personnel

The scientific staff of the Laboratories consists of a Director, an Assistant Director, Research Officers and Assistants.

1.	Research Staff.	34
2.	Administrative Staff	18
3.	Technical Staff	20
4.	Lab. Assistants and Attendants.	27
5.	Inferior Staff	25
		124

Expenditure

Budget for 1951-52

		Rs.
Salaries and Allowance	...	3,44,912
Contingencies	...	3,66,093
T.A. & Tour Charges	...	15,000
	...	7,26,005

Impact of Science on Society

By

Dr. Rajindar Pal, Malaria Institute of India, Delhi.

(Presented at the Symposium on Social Relations of Science organised by the Delhi Branch of the Association of Scientific Workers of India).

More than ever before, dissemination of scientific thoughts is required as the mankind faces the challenge "Is the humanity to be benefitted by Science or is it all a mere delusion?" An average intelligent man today has difficulties in trying to make some order of modern science. He opens his newspaper and there stands a revelation in head lines "Electronic Brain or Supersonic Flight or Is there life on Mars?" But whether headlines or no headlines the revelation still remains a code for him.

But the morning headlines suddenly take a place in the development of our world and it effects all of us. It is, therefore, in the interest of the scientist that he must tell the general public that science is not a haphazard collection of manufacturing techniques worded in unintelligible prose and carried out by a race of laboratory dwellers with acid-yellow-fingers and steel rimmed spectacles and no home life. Scientists are as human as any other people in the world and science is not merely a gingle of valves and formulae but is a method and force, in fact it is a NEW CULTURE.

But this force and the broad precincts of this Culture must be brought home to the public at large if we want to achieve harmonious cooperation.

In our heart of hearts whether scientists or non-scientists, the objective of mankind is clear— to create a better and satisfied world. I have purposely used the word SATISFIED rather than happier world, because happiness is such a difficult term to interpret and conveys different things to different people, a world where mankind may lead to a richer and fuller life. Science has the potentialities to create such a world, and whether she likes it or not it will play a leading role in achieving this dream.

We can no longer be blind to the fact that science is both affecting and is being affected by social changes in our times, and in these changes lies the answer to *for better or for worse?*

Perhaps one does not need much convincing that science has been a great benefactor of humanity and it would be a formidable task to prepare a complete list. To cite a few examples—it has lengthened life, it has mitigated pain and it has extinguished disease. It has increased the fertility of the soil, production of consumer goods and has multiplied the power of human muscles. It has given leisure to mankind, new pastimes to people and control over his environments. It has cut down distances, it has enabled man to descend into the depths of the sea and soar into the air.

But these are just parts of its fruit and perhaps its first fruits *because Science is a Philosophy which never rests, which has never attained, and which is never perfect. The point which yesterday was invisible is its goal today and will be its starting point tomorrow.*

It is beginning to be recognised that because of science society is at last in a position to satisfy adequately primary human needs, namely food, shelter, health and enjoyment. In fact it appears that mankind is within the reach of complete control over its environments which perhaps may be regarded as the highest aspiration for any living species if we were to put it in biological metaphor.

But, the events of our life-time have disillusioned the people to a point of frustration. We may point out the comforts and powers which science has given us but have we utilised these comforts and powers for creating a better and satisfied world? Have we found the peace of mind? We would also have to admit, howsoever reluctantly, but true it is, that the material science of modern times has not solved the problems of universal wealth and happiness.

The discoveries of medical science have saved lives and have added years to the lives of men, but have also created the problem of over-population. The assembly lines have created abundance of everything, but so also the problem of over-production which has not only resulted in a financial chaos but also un-employment and untold misery. The fear of still other wars more terrible than any warfare before in history, are pictures which must also be drawn today as fruits of science.

Our plight is like that told in the stories of Frankestein. In these stories some one who has special power over nature creates a machine to do his work for him and then finds that he cannot take back the life he has given it. The mindless monster overwhelms him and what began as an invention to do house work ends by destroying the master with the house. The story has become the epitome of our fears.

It is not, therefore, surprising that mankind is turning more and more away from the view that the development of science itself leads automatically to a better world.

In spite of our conquest of nature and environments the ideal has not yet been achieved. We are afraid of our own shadow in the nine o'clock news and wonder whether we shall survive. There is surely something wrong somewhere. Every one likes to blame his sense of defeat over some one else, and for sometime scientists have been a favourite scape-goat. Science has merely provided the means for good or bad in a constant endeavour for search of truth. Society has siezed these means and dictates their use. Science obviously is not responsible for the readiness of people who do not take their private quarrels beyond the stage of insult to carry their public quarrels to the point of war. Our enslavement by machines of the cause of war was not created by Science.

The truth is man is ethically unprepared. Society and science are out of tune. In the slow evolution of morals man is still unfit for the tremendous responsibility science has given him. The command of nature has been put in his hands before he knows how to command himself.

Why is it that both the lay public and the scientists show no concern as to how these means are used? Where shall we look for a remedy? I cannot tell, but let us consider this point dispassionately because it concerns every one of us and it is a matter of life and death. The new world is not something imposed on society from without but it will be made by people themselves. This is the responsibility of all of us whether scientists or not. If this split between physical and moral values of life continues, let alone the dream of Utopia, even the survival of mankind itself would seem problematical. But, what are we going to do about it? I feel many a searching heart must be brooding over this problem in our times in all corners of this unfortunate globe.

The first thing to do, it seems to me, is to treat this problem as a scientific question by which I mean a practical and sensible question which deserves a factual approach and a reasoned answer.

I am prepared to admit that scientists have made mistakes, and we may not discuss the mistakes of non-scientists although they have made a great many, but these mistakes can be remedied. The scientists must step down from their pedestal and talk to the average man in his own language. They should give up their unconcerned attitude. Not long ago a poor citizen asked a prominent astronomer whether it was possible for the atom bomb to destroy the earth. "Suppose, it does" replied the scientist with his usual unconcerned casual attitude "it is not *if earth were a major planet*"

It does not seem sensible to get rid of the scientists because of their detached outlook but invoke in them a spirit to take a greater interest in shaping the world in which they would like and love to live.

Secondly the public should also carefully consider the implications of the immense power which science has placed in their hands. To use the means for good or for bad rests with the society itself. The man in the street is right. We have never learnt how to handle such things. We should learn that our ultimate survival is in our own hands. If it is so we had better settle down for our survival and we had better start now. We have seen that the diagnosis has turned out to be not very difficult. Science and our social habits are inter-connected at every step and the cure is we must learn to match them. There is no way to learning this unless we learn to understand BOTH.

May be that our existing system of the society is quite unable to make use of new vistas of possible human betterment, but it is essential to make a start somewhere and build up step by step a society based on harmony of science and morals.

As we have proposed, will the study of this problem on scientific lines heal that neurotic flaw in us? If Science cannot then perhaps nothing can.

Prejudice, custom, emotion and instincts of immediate SELF INTEREST largely control human conduct, both in its public and in its private aspects. Even the scientist when he leaves the domain of his own speciality is by no means immune to these irrational motives. The family of any scientist may be consulted for confirmation of this point. Can Science alter the human nature basically so that it can overcome self interest and other biological instincts? May be in the years to come Genetics may work out an approach to the problem but nevertheless, *what we need today is an ethics which is moral and will work.* Moral development should go hand in hand with material sciences.

It is often said that Science has destroyed values and put nothing in their place. What has really happened, of course, is that Science has shown the harsh reality of division between our values and our work. I hope and it is the hope of humanity that Science can create values and will create them exactly as literature does by looking into the human personality, by discovering what divides it and what cements it. Science will create values and discover virtues when it looks into the man, when it explores what makes it man and not animal and what makes his society human and not animal packs. I believe that we can reach this unity in our CULTURE.

Science thus is one of the chief agents in changing the Society. Perhaps the most heartening feature of our times is the ideal of 'ONE WORLD' where mankind hopes to find a lasting solution of our problems and perhaps no other force in the world has played a greater part in the realization of this ideal than Science itself.

The world of our times has shrunk with the technological advance, which has also given us confidence that this planet can produce far enough for the subsistence and employment of everyone inhabiting it. Why then mankind cannot evolve a social set-up which will fulfil its dream of ONE WORLD free from want and fear, a world to live a happier and fuller life! Scientists have shown the possibilities, and they will perhaps rise to the occasion to meet this challenge of our times but it is also for the sociologists, the politicians and the man in the street to work for the Utopia which we want to build, if not for us, for our children to come.

Hyderabad Branch Membership—1951

An Analytical Picture

Mr. Baldev Singh, Central Laboratories, Hyderabad-Dn.

During 1951, amongst the scientific workers in Hyderabad, 124 filled in their forms—although according to the records only 96 paid their enrolment and membership fees entitling them to membership. For the purpose of this analysis, all the 124 members have been taken into consideration. The membership comprised of 117 ordinary and 7 associate members. There were 17 lady members.

The youngest member was 20 years old and the senior-most in age 56. The various age groups comprising membership were as follows :

Age group	No. of members	Percentage
Below 21 yrs.	1	0.8
21 to 30 yrs.	76	61.3
31 to 40 yrs.	39	31.4
41 to 50 yrs.	5	4.0
51 to 60 yrs.	2	1.6
Age not stated	1	0.8

Qualifications of the members ranged from the matriculation standard to doctorates in science, some possessing degrees from foreign universities. Distribution was as follows :—

Qualifications	No. of members	Percentage
Undergraduates	7	5.7
Graduates	28	22.6
M.Sc.s	71	57.2
Doctorates	18	14.5
Holders of degrees from foreign universities	23	18

Amongst the members, the various branches of science were represented as follows :—

Branch of Science	No. of members	Percentage
Chemistry	73	58.9
Physics	22	17.7
Engineering (including carpenters, moulders etc.)	13	10.5
Botany	7	5.7
Zoology	3	2.4
Mathematics	1	0.8
Economics	1	0.8
Sociology	1	0.8
Operational Research	1	0.8
Miscellaneous	2	1.6

The members came from research laboratories, university and teaching institutions, and industrial concerns as shown below :—

Institution	No. of members	Percentage
Research Laboratories	49	39.5
University and teaching institutions	53	42.7
Industrial concerns	16	12.9
Government departments	6	4 8
Army	2	—

Emoluments by way of basic salary of the members ranged from Rs. 60/- in the case of an associate member to Rs. 1600/- per month for a research director. Distribution into various income groups was as follows :—

Income group	No. of members	Percentage
Below Rs. 100 per month	3	2.4
Between Rs. 100 to Rs. 200	9	7.4
„ „ 200 to Rs. 300	22	17.7

Income group		No. of members	Percent-age
Between Rs. 300 to Rs.	400	64	51.6
„ „ 400 to Rs.	500	2	1.6
„ „ 500 to Rs.	600	13	10.5
„ „ 600 to Rs.	700	4	3.2
„ „ 700 to Rs.	800	1	0.8
„ „ 800 to Rs.	900	nil	0
„ „ 900 to Rs.	1000	nil	0
Above Rs. 1000 per month		4	3.2
Income not stated		2	1.6

Note:—The amounts shown above are in Osmania Sikka (Rs. 116-10-8 of Osmania Sikka are equivalent to Rs. 100 Indian currency).

Conclusion : Most of the members of the Association of Scientific Workers of India (Hyderabad Branch) come from the youthful age group of 21 to 30 years. A large majority amongst them possess a Master's degree in Science, chemistry being the science most represented. Research and teaching contribute 82% of the membership while some 13% come from the Industry. The income group getting between Rs. 300/- to Rs. 400/- per month is the best represented in the membership of the Association.

An analysis of the type given above is necessarily of very limited usefulness considering the small number but if all the Branches could subject their membership lists to a similar analysis, a clearer picture of the socio-economic structure of the organisation would emerge.

NEWS AND VIEWS

The Prime Minister takes to air

The Prime Minister, Mr. Jawaharlal Nehru, flew in a Comet Jet Air-liner for the first time on 20th August, 1952. He took off from the Palam Aerodrome in the B.O.A.C. plane and returned to Delhi after a visit to the snowbound peaks of the Himalayas. Mr. Nehru, the Foundation President of this Association, thus gave manifestation of his desire to be on the progressive lines in scientific and technical developments. Associations of this type with ventures a little out of the normal well-trodden routine give encouragement to progressive elements. It is reported that he showed keen interest in the working of the air-craft and the instrument panel.

Technical Training

The need for facilities for technical training in this country has been referred to again by one of the Ministers of the Union Government. Mr. C. D. Deshmukh, the Finance Minister, as he laid the foundation stone of the Birla Hostel of the Madras Institute of Technology. At this ceremony, Mr. Deshmukh said that technological institutions should not depend entirely on Government. Such institutions should be financed at least partly by resources raised from the private sector. The Finance Minister referred to the plight of technicians returning to India after technical training abroad. He said that a very large number of students were sent abroad for training during the last few years after independence. Most of them returned to find that there were no niches in which they could deploy their abilities. In order to avoid such tragic kind of consummation it was necessary to assess the future needs of the country and take steps as economically as possible to achieve them. Referring to the employment position with special reference to engineering graduates he wondered how many of them could find jobs suitable to their talents, although there was enough work to be done within the country. There seemed to be some unbalance in the system of turning out trained personnel, resulting in wastage of efforts.

Mechanisation of Fishing Industry

It is understood that a grant has been received by the Union Government under the Technical Co-operation Programme for the purpose of developing the fishing industry in this country. The grant will cover equipment as well as training of personnel, employment of foreign experts and establishment of offices and schools. A mission consisting of representatives of the Fisheries Development Department and Directors of Fisheries of some of the States will visit the U. K., U.S.A. and Japan to select the machinery required for the mechanization and an expert from the U.S. will advise the mission in this work. It is expected that nine foreign technicians will come to India to work with local crew to assist them to learn the use of machinery. It is expected that by mechanisation of the fishing industry, the catch of fish will be enlarged thus adding to the sources of rich animal proteinous food.

The National Advisory Committee for Public Co-operation

The National Advisory Committee for Public Co-operation has been set at up the instance of the Planning Commission primarily with the object of advising and guiding the Commission in all matters bearing on public co-operation in national development. The Prime Minister, Mr. Nehru, presided over the first meeting of the Committee held on 12th August, 1952 at Delhi. Mr. Nehru told the Committee that it is the public activity which in the final analysis is more important as the Government's action without the people behind it cannot bring any substantial achievement. Mr. Nehru referred to the large number of people in China associating themselves with Government activities and said that it was important to bear in mind that the progress made by countries like China had been possible because of large scale public co-operation. He referred to the formation of the Bharat Sewak Samaj and requested the Committee to give it "a push". Mr. Nehru has been elected to be the President of the Bharat Sewak Samaj. The programme of the Samaj covers activities such as economic development, social health and education and community recreation.

Workers to Advise

Mr. Shri Ram, Chairman of the Jay Engineering Works Ltd., while addressing the Annual General Meeting of the share-holders of the company held at Calcutta on 4th August, 1952 referred to the system of inviting suggestions from the workers for reducing cost, eliminating waste and improving efficiency followed in the works very satisfactorily. He said that they placed their problems before the workers and sought their suggestions. He further stated that they now proposed, to take another measure to improve the workers' under-standing of the factory, viz. they intended to publish for the perusal of the workers a simple statement of the annual manufacturing and profit and loss accounts. This he hoped would improve the workers' interest in the concern and clear up any doubts regarding the working of the factory. Mr. Shri Ram said that he was happy to say that the relations with the workers continued to be good and that the output per head continued to show improvement. The workers for their part showed appreciation of the privileges, such as the scheme of profit sharing, which was put into operation last year.

Employment in Foreign Firms

In the Editorial of the Vijnan-Karmee of August, 1952 a reference has been made to the suggestion of the Association of Scientific Workers of India that the Government of India should institute an enquiry committee to make a report on the service conditions of technical personnel in foreign firms and to see how far the posts which could be held by Indian personnel have been given to foreign employees. It is understood that the Ministry of Commerce and Industry has now started an enquiry and that details have been called for from all foreign firms engaged in industry, trade and other business.

Financing the Five Year Plan

Mr. Purshottamdas Thakurdas, chairman of the Oriental Government Security Life Assurance Company Ltd., while addressing the 77th ordinary general meeting of the shareholders and policy holders of the Company held on 30th July, 1952 at Bombay referred to the financing the Five Year Plan. The programme of expenditure under the Plan required an enoromous outlay and the Central and State Governments were, therefore, obliged to find resources to meet this capital expenditure. The ultimate object of the plan, Mr. Thakurdas said, was to provide comforts for the present as well as for the future generations but he hoped that in their anxiety to find finance to implement the Plan, Governments would not overlook the plight of the common man who was subject to twin pressure of high cost of living and increased taxation. He stated that in the execution of the Plan all sections of the community would have to be prepared for sustained work as against leisurely work. It would be necessary for the Governments to keep continuous watch to see that the large amounts of public money were spent with utmost economy in every sphere and that non-development expenditure was severely pruned down.

Cottage Industries

In the Draft Five Year Plan, it has been stated that small industries, wherever possible, should be linked up with large scale production in such a way that they develop along with the large scale units and contribute to aggregate production. The production plan for large and small scale industries should be conceived and worked out as an integral one. Mr. D.P. Karmarkar, Minister for Commerce, presided over a symposium "Problems of medium and small scale industries under the present economic conditions" held under the auspices of the All India Manufacturers Organisation at Bombay on 31st July, 1952. Mr. Karmarkar stated that the growing unemployment in urban and rural areas can, to a very large extent, be stemmed only through solving the problem of medium and small scale industries in the best manner possible. He stated that although large scale industries had to play a great part in creating as large a national production as possible, they could not by themselves provide adequate employment to the huge population in this country.

Mr. Shri Ram referred to the development of cottage industries in his address to the Project Executive Officers at Nilokheri on 8th August, 1952. He said that there was need for integration of small scale and cottage industries with large scale industries and that large scale industries need not necessarily be antagonistic to the growth of small scale industries. He emphasized that it was necessary to stop the waste of man, material and time. The two types of industries should work as complementary to each other.

Late Professor Sir Jack Drummond

The news about the murder of Professor Sir Jack Drummond, his wife and their daughter, in southern France in the Alpine Region on 5th August, 1952 has come to the scientists the world-over as a rude shock. Sir Jack Drummond was the famous British Food Scientist who planned Britain's diet successfully during the war. The good effects of the planned dietary of the British people during the war showed conclusively that if scientific methods were employed, much could be achieved in the feeding of a population. There has been as yet no information regarding the murderers and the reasons for committing this heinous crime. Investigations are proceeding.

World Federation of Scientific Workers

The Executive Council of the World Federation of Scientific Workers met in Vienna on May 31st, June 1st and 2nd, 1952 under the Chairmanship of the President of the Federation, Professor Frederic Joliot-Curie. There were present:

Professor J. D. Bernal, F.R.S., Vice-President of the World Federation of Scientific Workers, Physicist.

Academician V. Nikitin, Member of the Presidium, Academy of Sciences of the U.S.S.R., Electro-Mechanics, (Electrical Engineer).

Mdme. I. Nikitina, Mechanical Engineer.

Professor I. Lebedev, President, Trade Union of Educational and Scientific Workers of the USSR, Economist.

M. Oraevsky, Secretary, Historian.

Professor T'U Chang Wang, Director, Weather Bureau, Deputy Secretary General, Chinese Federation of Scientific Societies.

Professor Tsien San Tsiang, Director, Institute of Modern Physics, Academia Sinica, Peking, China.

Professcr Chiang Yu Tu, Biologist.

Professor L. Infeld, Professor of Theoretical Physics and Director Physics Institute, Warsaw, Poland.

Professor Z. Kuligowski, Director, Psycho-Neurological Institute, Warsaw.

Professor K. Bratanov, Professor of Biology, Sofia University, Bulgaria.

Dr. P. Biquard, Physicist, Ecole de Physique et de Chimie, Paris.

Dr. W. A. Wooster, Honorary Treasurer, World Federation of Scientific Workers, Physicist, Cambridge.

Dr. E. G. Edwards. Honorary Secretary, World Federation of Scientific Workers, Chemist.

Mr. J. G. Crowther, Secretary-General, World Federation of Scientfic Workers.

The meeting was held in Vienna, thanks to the Austrian scientists, after the British government had refused to allow non-British members to enter England to participate in a meeting arranged at Cambridge, in March, 1952.

The meeting began with the acceptance of new affiliations to the World Federation. The new members are:

The Trade Union of Higher Educational and Scientific Workers of USSR.

The Scientists Section of the Polish Teachers' Union.

The Hungarian Association of Scientific and Technical Societies.

Academician V. Nikitin, Head of the Soviet Delegation, brought to the Council an inspiring message of how the Soviet scientists are participating in great constructive works and are devoting their skill and knowledge to transforming nature. He spoke of the enthusiasm of Soviet scientists in joining with their colleagues of other lands in the World Federation of Scientific Workers. In the name of the Polish delegates, Professor L. Infeld, expressed the profound satisfaction of the Polish scientists in joining the Federation and in the prospects of collaboration.

The President, Professor Joliot-Curie, on behalf of the Council, warmly welcomed the new affiliated bodies and their representatives, which have brought an increase of 40,000 in the membership of the World Federation, bringing the total to 84,000.

The Council heard reports of the growth of new associations of scientists in various countries and discussed how these developments could be encouraged.

The Federation now has within its ranks scientists' associations of China, France, United Kingdom, U.S.A., U.S.S.R. and nine other countries. The Federation now forms a truly unique world wide organisation devoted to the welfare of science and scientists and the utilisation of science for peace.

Following the decision of the Second General Assembly, the Executive Council has increased its membership to twenty-two corresponding to the growth and increase in range of the Federation and its activities. There are now five Vice-Presidents :—

Professor J. D. Bernal, F.R.S.
Professor Li-Tze-Kwang (Vice-President, Academia Sinica).
Academician A. I. Oparin (USSR Academy of Sciences).
Professor Linus Pauling (United States National Academy of Sciences).
Professor C. F. Powell, F. R. S. (Nobel Laureate).

And three Honorary Secretaries:

Dr. E. G. Edwards
Professor I. Malek
Professor T'U Chang Wang.

Professor I. Lebedev, President of the Trade Union of Higher Educational and Scientific Workers of the USSR, has joined the Council as regional representative for the USSR. Professor L. Infeld, of Poland, was elected as an individual member.

The Council formed a Bureau, consisting of the President, the Vice-Presidents and the Secretary General to direct the carrying out its decisions and facilitate the work of the Federation.

Proceeding with its deliberations, the Executive Council discussed some of the difficulties that face science in a divided world and unanimously passed the following resolution ;

"The Executive Council of the World Federation of Scientific Workers which met in Vienna on May, 31st, 1952, has studied the serious influence on the development of science, of the evermore numerous restrictions imposed on the travelling of scientific workers between various countries. Cases multiply in a disturbing fashion of scientists who, under various pretexts, are not given permission to participate in international congresses, or to be present at conferences organised by scientific institutions, or even to visit their colleagues in foreign laboratories. These measures are in fact a means of exerting pressure on the opinions which are held by scientists as citizens and they prejudice to a considerable extent their professional activity. Already, in many countries reaction against this state of takings is beginning to appear.

"Science is of interest to all humanity and benefits all men. Specialists from all countries must be able to exchange their knowledge and mutally stimulate their researches by frequent meetings. History shows that the great periods of progress have always corresponded with times when scientific thought was widely diffused. This great danger which faces science applies to everyone and none can remain indifferent. The Executive Council of the World Federation of Scientific Workers appeals to all affiliated organisations and also to all groups interested in the development of science and culture and asks them to take up urgently all these problems and take the necessary initiative to obtain the re-establishment of normal culture exchange between all countries."

The Council was addressed by Professor T'U Chang Wang, Deputy Secretary General of the Chinese Federation of Scientific Societies, on the employment of bacteriological warfare by the United States in China and bringing out new and convincing scientific evidence of the use of this inhuman weapon and showing, also, recordings of interviews with American airmen who have taken part in the dropping of germ bombs. After careful deliberation the Council adopted a resolution that the President, Professor Joliot-Curie, in the name of the Executive Council, should address letters to the affiliated organisations urging them to express their effective opposition to biological warfare, to urge the United States government to sign the Geneva Protocol of 1925, and to request the

United Nations to pass a resolution condemning the use of biological weapons.

The Council has arranged to implement the decisions of the Second General Assembly. The Council considered particularly the implementation of the resolution of the Second Assembly on the question of an international conference which, in the domain of science, can promote mutual understanding, peace and the welfare of mankind, and came to the conclusion that the initiative for such a conference could best be taken by an independent body to which the Federation would pledge its full support.

The Council has also taken into account the resolutions submitted to the Federation by the Annual Council of the British Association of Scientific Workers 1951. It approved the making of an enquiry into the economic conditions of scientific workers and considered proposals for a Bulletin.

The Council decided that the Bureau of the World Federation shall create as quickly as possible a fund for aiding scientists who are persecuted on account of their fight for peace and for the use of science for the benefit of mankind.

Professor Joliot-Cure concluded the meeting with an expression of his deep interest and joy in working with the growing Federation. The great importance of the new affiliations had been reflected in the discussions. In addition to its former sources of strength, the Council had now been able to draw upon the constant inspiration of the spirit which animates the scientists of the USSR. The Federation was now becoming a great force directed towards obtaining for scientists better conditions in which science can flourish and fulfil its true tasks in the service of the people. The fight for these ends was very hard. The policy of silence, of calumnies and adverse propaganda is being deliberately directed against the Federation and against all progressive scientific organisation and scientists. The forces of aggression grow, but we derive confidence from the fact that so do those of peace. We have great expectations of success and of achieving that success very soon. We are to-day in the presence of a double race towards towards peace. The nearer we get to war the nearer, also, do we approach peace. Our adversaries know this very well and for that reason they are redoubling their efforts, but also their mistakes. This shows us that we are not very far from reversing the whole present tendency to war. The territory of the Federation is the only one in the whole world on which representatives of science of all countries can meet. Echoes of our work and of our resolutions will be heard throughout our affiliated organisations and even those that are not with us, whose objects are not precisely the same as our own; we must set the example; we must try to join in our actions those who are in all parallel organisations and we will surely find many other scientists coming to join our ranks for they will recognise that we are striving to secure that Science should serve the cause of human welfare and of peace.

ACTIVITIES OF THE BRANCHES

A New Unit at Kaghaznagar

A new unit of the Association has been formed at Sirpur Paper Mills, Kaghaznagar (Central Railway). The following have been elected as office-bearers and the Executive Committee :—

President	Mr. M. A. Hadi
Vice-President	Mr. M. Sirajuddin Siddiqui
Secretary	Mr. Safdar Hasan
Members	S. F. J. Morris
	Mr. Sitaram Chandra Rao
	Mr. D. N. Dastur
	Mr. D. N. Tarapore.

Bombay Branch

The Executive Committee of the Bombay

Branch has adopted the following two resolutions at an emergency meeting of the Branch Executive Committee held on 18th July, 1952.

(1) "The Executive Committee of the Association of Scientific Workers of India, Bombay Branch, expresses its grave concern over the reported suspension of Shri V. R. Joshi, an employee of the Ordnance Establishment, Kirkee, and the President of the Association of Scientific Workers Kirkee Branch, without assigning any reason other than the allegations made by him through the Defence Ministry, New Delhi, regarding certain malpractices in the Defence Establishment, Kirkee, an action which was taken by him in his capacity as the President of the above Branch in good faith and in the interest of the country.

"The Committee strongly urges the institution of an independent and impartial committee to enquire into the circumstances leading to the suspension of Shri Joshi and to see that justice is done to him.

"It is further resolved that the copies of the above resolution be sent to (1) The Defence Ministry, Government of India (2) The Ministry of Labour, Government of India, (3) The Superintendent of Development Ordnance Establishment, Kirkee, (4) The President of Association of Scientific Workers of India, New Delhi, and (5) The President of the Association of Scientific Workers of India, 'Ordnance Establishment Branch, Kirkee."

(2) "The Executive Committee requests the Kirkee Branch of the Association to keep the Bombay Branch informed about the developments and assures the Kirkee Branch President that should any monetary or other help be required the Bombay Branch will do its best to offer the same".

Tata Memorial Hospital Unit at Bombay

The Annual General Meeting of the Tata Memorial Hospital Unit was held on 8th July, 1952 with Dr. V. R. Khanolkar in the chair. Mr. N. K. Varma, Secretary of the Unit presented the Annual Report for 1951-52. The main features of which were--starting of local library of scientific and popular literatures of general interest, contact with London A.S.W., the unit becoming regular subscriber of "Scientific Worker" of England, correspondences with the Associations of other countries, starting of Hindi class and introduction of individual member through lectures of his or her activities of the laboratory.

Mr. H. J. Pastakia and Mr. Krishnamurthy were elected as Secretary and Joint Secretary of Unit respectively for the year 1952-53. The Unit also adopted a resolution requesting the chairman of Sir Dorabji Tata Trust to adopt the recommendations of International Committee of Radium and X-ray for the workers of Radiation Departments of the Tata Memorial Hospital.

The Secretary in his brief remarks outlined the definitions of scientific worker and cited examples to show that even well placed scientists took keen interest in the Association for the good of the humanity at large. There was no reason why the scientific workers of India should lag behind. He further quoted the success of London A.S.W. in getting equal salary for both-medically qualified and non-medically qualified research workers. He expressed great admiration and deep respect for Dr. Khanolkar who always had his love and sympathy for the scientific workers and whose suggestions and guidance were always of immense help for the Association.

The President in his address exhorted all the scientific workers to become the members of the Association and to always cooperate with the Secretary. He was of the opinion that there should be mutual understanding and cooperation amongst the workers. He said that compartments should not exist between the workers. Everybody must know what the other is doing. In this connection he suggested that occasionally we should meet together to know about the individual work and problems. He continued to say that everybody should try to learn something from the other workers. He explained that everybody talks of scientific work but very few do it in practice.

"Research" was very easy to say yet very difficult to explain. He emphasised that the senior workers, while working for the advancement of science, should make it a point to see that torch of knowledge is handed over properly to the younger generation.

The Unit had also been holding a series of lectures. Miss K. Ramaswamy addressed the hospital staff on the subject "Lesmania Donovani" which was much appreciated.

Dr. Vohra of the X-Ray Department of the Hospital addressed on "Roentgen Rays in their therapeutical and biological aspects". He traced the history of the origin of X-ray, its gradual evolution into modern form, the present method and technique high and low voltage X-ray production, various methods of quenching the enormous amount of heat developed during the process, measurement and calibrations, its ionising effect upon cells and tissues and the malignant growth of cancer patients. Dr. Vohra went on to say that the will and determination of a handful of doctors and surgeons was responsible for the present level of big organisation of Tata Memorial Hospital. He further added that the same faith in research was responsible for bringing into existence the huge cancer research building in the hospital compound. He ended his lecture by expressing his love and deep appreciation for the Association.

Izatnagar Unit

The Izatnagar Unit has adopted the following two resolutions :—

(1) "Resolved that the inordinate delays frequently occuring in the payment of salary to the temporary officers of the Indian Veterinary Research Institute, Izatnagar, are a source of worry, embarrasment, inconvenience and hardship to them. The Izatnagar Unit of the Association of Scientific Workers of India urges upon the authorities concerned to take appropriate steps to see that the payment of salaries is not delayed.

"Resolved further that a copy of this Resolution be sent to :—

(i) The Director, Indian Veterinary Research Institute, Izatnagar.

(2) The Secretary, Ministry of Food and Agriculture (Agri.) Government of India, New Delhi.

(3) The Secretary, Ministry of Home Affairs, Government of India, New Delhi.

(4) The Accountant General, Uttar Predesh, Allahabad."

(2) "Resolved that the Director, Indian Veterinary Research Institute, Izatnagar be requested to expedite action in respect of the Government of India circular, according to which it is understood that eighty percent of the temporary staff is to be made permanent. The Director, I.V.R.I. be further requested to supply a list of the temporary staff of the I.V.R.I. with details of the posts held and the dates of their appointment at an early date. The Director may also be requested to supply a copy of the above circular and intimate the action so far taken in respect of this.

"Resolved further that a copy of this resolution be sent to :—

(1) The Secretary, Ministry of Food and Agriculture (Agri.) New Delhi.

(2) The Secretary, Ministry of Home Affairs, New Delhi.

Raniganj Branch

A donation of Rs. 25/- has been received from the Raniganj Branch towards Vijnan-Karmee fund which has been very much appreciated by the General Secretaries of the Association.

Regd. No D.—16 FOUR ANNAS

Published by Dr. P. K. Kichlu and Printed at the University Press, University Buildings, Delhi 8