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ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

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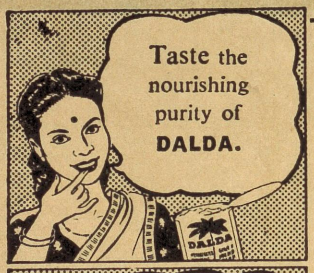
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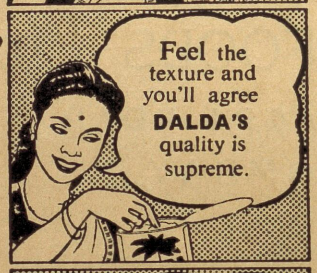
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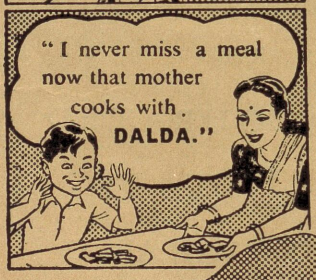
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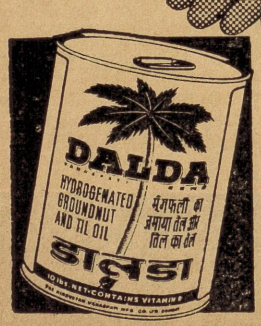




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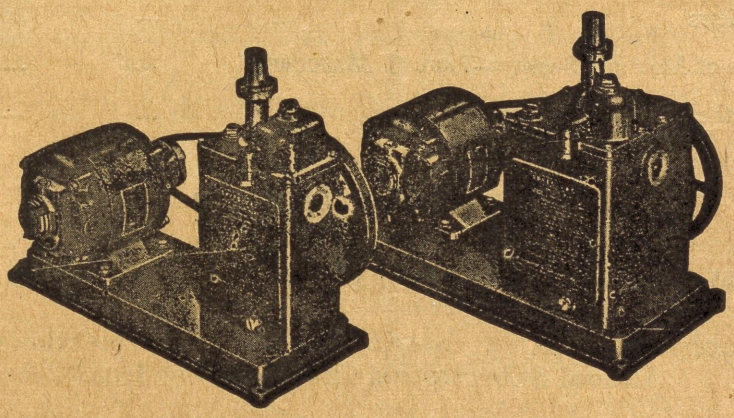
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To improve and safeguard the economic interests, the conditions of life and the professional and social status of all Scientific Workers in India

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.

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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.
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VIJNAN-KARMEE

विज्ञानकर्मी

VOL. V] May, 1953 [No. 5

RECOGNISE THE SCIENTIFIC WORKER

The Building Research Institute at Roorkee, the eleventh and the last in the chain of National Research Laboratories set up within the past few years under the auspices of the Council of Scientific and Industrial Research was opened by Maulana Abul Kalam Azad, Minister for Education in the Union Government, on 12th April, 1953. Maulana Azad stated that the establishment of these National Laboratories was a landmark in the history of India's industrial development and added that they were the first systematic attempts to apply science and technology to the nation's industries. He also paid a tribute to the outstanding efforts of Dr. Bhatnagar, the Director of the Council of Scientific & Industrial Research, and said that Dr. Bhatnagar has proved himself an eminent administrator besides being an eminent scientist. The scientific workers in this country are glad to know of this recognition from the Minister of Education that the scientists, given opportunities and free hand, could give a good account of themselves not only in science but also in administration of the creative type. If one could go back a few years and recollect the discussions that were taking place regarding the setting up of the first National Laboratory, the National Chemical Laboratory at Poona, one could realize the importance of the work done by Dr. Bhatnagar in the service of science for this country.

Mr. Jawaharlal Nehru, Prime Minister, who was present on the occasion said that the setting up of the National Laboratories was part of the great effort to bring joy and comfort to the millions of families in this country. Building up new India was a magnificent adventure and a mighty task and it would be for these Laboratories to play the leading role in the national effort. He said that there was no room

for quailing hearts but boldness and imagination were required. The country's progress depended on the application of science to agriculture and industry. He stressed the point that the National Laboratories were built at great cost and sacrifice not to provide a forum for mental battles but to discover how the findings of science can be utilised for national construction. He gave a warning that the country will remain backward if means were not found to employ atomic energy for peaceful purposes.

We now have the National Chemical Laboratory at Poona and the National Physical Laboratory at New Delhi for research in fundamental sciences. What a common man needs is food, clothing and shelter. We have the Central Food Technological Research Institute, at Mysore for dealing with problems related to food. The Indian Council of Medical Research has the Nutrition Research Laboratories Coonoor, shortly to be shifted to Hyderabad, for carrying out investigations for nutritional problems. The Indian Agricultural Research Institute at New Delhi together with a number of research institutes for different commodities are at the service of the nation for the production of food and agricultural products required for clothing and sheltering the common man. The Central Cotton Committee has got its Textile Laboratory at Bombay for problems connected the production of textiles. The Building Research Institute at Roorkee could take care of the problems encountered in the provision of housing and shelter. To add to the comforts of the common man we have the Central Drug Research Institute at Lucknow, the Road Research Institute at New Delhi, the Glass & Ceramic Research Institute at Calcutta, the Leather Research Institute at Madras, the Electro-chemical Research Institute at Karaikudi, the Metallurgical Research Institute at Jamshedpur and the Fuel Research Institute at Dhanbad. We have in addition the Atomic Energy Commission which is arranging for various investigations related to the utilisation of atomic energy in the country for the benefit of the common man. We could, therefore, confidently say that we now have in this country all the modern tools required for carrying out scientific research for the development of the country on modern lines.

Not only that we have the tools but we could boast of good workers as well. But the mere existence of the tools and the workers together would not help. If kept out of work both the tools and

the talent would begin to rust and get out of use. It is necessary for those who are in charge of the industry and the Planning Commission to take full advantage of the facilities rendered available by the efforts to the Council of Scientific and Industrial Research and other Ministries of the Government of India and to give full opportunities for developing the creative capacities of the young scientific workers in this country. It is absolutely essential that the young scientific talent in the country should be not only nourished but fondled carefully so that in the course of time it will grow to full maturity.

We are happy to note that the Government of India have given due consideration to the necessity of giving encouragement to artists in this country. The President has awarded, for the 2nd year, "Sanads" to musicians in token of his recognition of their art. It is unfortunate that the Government of India has not yet taken a decision to give similar awards to scientists as a recognition of the scientific work done by them. In this connection this Association had passed a resolution at the Fifth Annual General Meeting held at Bangalore at January 1951 that it was of primary importance to give encouragement to Indian scientific workers and had recommended the institution of yearly prizes in the name of the President of India for the best pieces of scientific work in different branches of science. It is understood that at the above suggestion of this Association the National Institute of Sciences approached the Government of India for institution of a number of special prizes and a scheme was drawn up jointly by the National Institute of Sciences and the Council of Scientific & Industrial Research. It is hoped that the Government of India would not too long delay the institution of the Annual Prizes. This Association stands for the economic betterment of the young scientific workers and it is necessary that the Government of India recognize the scientific worker as an important factor in the development of this country.

INDIA'S ECONOMIC SALVATION

K. D. SHARMA

The Madhusudan Oils Mills, Agra.

Our country has successfully completed her pilgrimage to freedom, and we recently solemnised the third anniversary of our young Republic. During less than half a dozen years of its independence, it has risen from centuries of subjection to become one of the greatest democratic nations of the world and one of the most powerful forces of peace among the peoples of the world. We are proud that our national government have dedicated itself to the task of building up a better and fuller life for its three seventy million citizens under a democratic rule. We see great dams, that will irrigate crores of acres of land, nearing completion, rivalling those of any modern country in the world. We see vast tracts of fallow land being reclaimed to do away with the national deficiency in food. We see advanced institutes of science, health and technology being established with astounding rapidity, to devise, products, methods and skills for development. We see basic industries such as fertilizer plants, power plants, aircraft factories and ship-building yards steadily going into production. We see India's most dreaded scourges, Malaria and Tuberculosis being vigorously attacked through a nation wide plan to wipe them out entirely.

The 55 Community Projects, inaugurated on 2nd October, 1952 the birth day anniversary of the father of the nation, Mahatma Gandhi, have achieved remarkable progress and new life and a spirit of self-help has come to stay in the areas where they have been launched. They will be reaching millions of villages with improved farm methods and implements, with help toward better health and sanitation and with means to overcome illiteracy.

The incorporation of all the Princely States into a single nation, brought about by India's Master Statesman, Sardar Patel, is an achievement the importance of which has been insufficiently recognised both in India and abroad because it was so smoothly brought about. India has also adopted a Constitution, that has been received with admiration by constitutional jurists all the world over. And to cap its constitutional achievements, India held last year, the largest-scale democratic elections ever known in history. India's Five Year Plan has also been generally recognised to be a model; courageously putting first things first and showing that freedom and planning can be reconciled by resolute democrats in Asia no less than those in the West. A clarion call to the nation to wholeheartedly co-operate with the Government in implementing the Plan in order to bring about a new social order free from exploitation, poverty, unemployment and social injustice was given by our Prime Minister, Mr. Nehru in his New Year message to the nation. He invited all to become partners in this great enterprize of building up New India, which will rationalise industry and change its economics by bringing into light new methods and techniques and presenting possibilities of using new materials.

The Plan rightly gives first priority to agricultural development. If self-sufficiency in food is attained, the biggest item responsible for the drainage of foreign exchange will be eliminated. But the development should not be a lopsided one. It must a balanced and co-ordinated one. So industrial expansion also must be made to proceed vigorously as our rural areas grow

and prosper. Indian industry, however, has to rely for its outlets mainly on the home market. Purchasing power in the home market depends mainly on the purchasing power of the agricultural population. That has to be built up as the first foundation for industrial expansion. When it will be built up, enormous opportunities will open up for the expansion of industry. India with her 370 million people has the greatest free trading area in the world. The great need is to get out of the present vicious circle and start an expansive building up process. But the intensive action for the development of agricultural production must accompany preparation for large scale expansion and the interests of the industrialists are linked up with the development in both the fields.

The proposed Government expenditure for the Plan is Rs. 2069 crores and the expected eventual increase in national income is estimated at Rs. 10,000 crores. During the period of implementation of the Plan, the Government is going to rely considerably on the private sector for the expansion of industrial production, as the resources of the State would be used for the development of agriculture, irrigation and power. Though the Plan leaves the main field of industrial development to private enterprise and it will be free to pursue its normal activities, but this part of the Plan cannot work satisfactorily unless a harmonious system of collaboration and co-operation between Government and private enterprise can be developed and it will not be possible till there is mutual confidence. One of the greatest dangers in India today is over-centralization and the creation of a top-heavy administrative machinery. The Government should seek ways for decentralising execution to the agencies of private enterprise. The government cannot do this unless it can trust the agencies of private enterprise, the onus is on it to prove that it deserves the confidence of the Government and public opinion. Anyhow, there is need for frank and intimate methods of consultation with industry and a need for a new class of 'Industrial Statesmen' on both sides.

Previously it was feared that sufficient capital would not be forthcoming because of the danger of nationalisation. But now that fear has been shed by the declarations of the spoksmen of the Government. The Planning Commission stated that when finance was 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 utilize foreign patented processes.

During the period of execution, there will be real prosperity but it may come along with some inflation. This should be controlled by the industrialists by undertaking production of consumer goods and other intermediate goods in anticipation of an enhanced demand as a result of a rise in the standard of living. An increase in the standard of living should mean more goods per person and not more money, as otherwise the rich would be made richer and the poor poorer and that will be against national interest as the rich section of the people have low degree of propensity to consumption and will lead to accumulation of wealth and not in its equitable distribution. The labour should be paid higher wages. The man who tries to earn profits by depressing wages is a public danger. The standard of living depends on production; and increase in production as also increase in the productivity of the workers are the crying needs of the time. Unless we produce more we can not increase the wealth of the country and consequently we cannot raise the standard

of living of our people. So the workers must be paid higher wages and they must be earned by greater productivity. But the workers must recognise that substantial wage increase is bound to raise cost unless there is compensating rise in productivity. Higher cost of production will force the prices up and thereby the standard of living of the workers themselves would be at stake.

The basic strength of a nation does not come from political activity alone. It comes mainly from its economic strength and independence and that is the key to a country's security and progress. India has successfully completed here pilgrimage to political independence. She has now another pilgrimage to complete and that is of economic independence.

I suppose the end of all economic endeavour is to banish want and to raise progressively the standard of life of the people in general. No system or social organisation could pretend that its objective was otherwise. The much maligned School of Classical Economists also held the same view. They too believed, through their doctrine of 'Laissez-faire, Laissez-passe' in the ultimate welfare of the community working through the channel of free individual enterprise. However, the forms and principles of economic organization have varied from age to age and to-day we find the world torn between two ideologies i.e. planned economy and free enterprise. The ideal way under the present set of conditions will be planned economy in which both capital and labour will co-operate under the guidance of the State.

The free enterprise of the old Classical Economists is no longer prevalent anywhere in the world. Even in the land of supreme individualism i.e. America, free enterprise is not permitted to have its ruthless sway. Supervision, guidance and control are being slowly introduced in many directions of economic activity. Similarly in the country of complete economic domination i.e. Russia, substantial incentive is given to private enterprise particularly in certain fields of economic activity. While noting this difference it must be borne in mind that one is the land of free enterprise and the other of totalitarian control.

Though the Five Year Plan leaves the main field of industrial development to the private sector, still as the Government maintains expensive and all pervading powers of control, the system of private enterprise has no chance of survival in the modern conditions unless it can effectively collaborate with the Government in the fulfilment of national programmes and unless it can satisfy public opinion that it is operating in the public interest. But to successfully wage war against scarcity and want, the Government should endeavour that the active support of private enterprise is also enlisted.

India has many problems to solve. There is scarcity and shortage even of the bare necessities of life i.e. of food, clothing and housing. Each passing year adds to desparation by the net addition to our population of 4½ million souls. Problems of hunger, poverty and sickness cry aloud for solution and must at all costs be adequately solved. India now is on the threshold of a vast undertaking in the guise of the Five Year Plan and let us hope and pray that it may succeed in solving all our economic problems. But the solution of the problem of rapidly deteriorating economic condition leading to mass-scale unemployment and hindering the healthy growth of the community, lies in the industrialisation of the country on the basis of a socialist economy. The Plan it is hoped, will remove many of our national ills and in it science is bound to play a vital role and hence it behoves all

in general, and the scientists in particular, to do their bit in the solution of India's material problems by adding to the country's national wealth. Fortunately the vital role that science has to play in the rapid economic progress of the country has, of late, generally begun to be recognised.

Indian scientists to-day are grappling with a number of problems, the solution of which is vital to national production and economy i.e. discovering more economical ways of using imported or rare materials, elaborating substitutes for raw materials which the country does not produce, investigating measures to improve the quality of economic products, finding use for waste products, tapping new resources of energy and wealth and maintaining a close liaison with industry. Economic use of the material is the sine qua non of rationalised industry and the need for economy is specially imperative in the case of imported and rare materials.

The application of science to the processes of industry marked the beginning of the Industrial Revolution. Its first result was the attempt to make machines do what formerly had been done by manual labour. This led to an enormous increase in the volume of production which in turn led to an expansion in the market. Since then modern industry has depended more and more on the use of machine. Invention, manufacture and use of new machines thus became one of the conditions of industrial progress. Equally important is the application of science for better utilisation of whatever resources a country has. Science has now reached a stage when almost anything can be made to perform almost any function. Modern Chemistry for example, can create food and drink out of coal and chalk, wool out of wood, and all kinds of building material out of glass and plastic. It would not, therefore, be wrong to say that the development of industry in the modern world is a function of scientific knowledge.

Since her independence, India has set out to fulfill the conception of a Welfare State. But a country with a per capita income of Rs. 250/- cannot be a welfare state to the same extent as a country with an income of more than Rs. 3000/- (U.K.) The concept of Welfare State, as implemented by the Labour Government in the United Kingdom, is based on the principle enunciated in the Beveridge Plan that it was the duty of the State to provide a guaranteed minimum income to the citizen, irrespective of his financial position and to restore a sick person to health. But if things were scarce, even the minimum guarantee of money would not enable the citizen to procure the necessities of life, as people with more money would out-do him in the market. So the concept of a Welfare State is workable where commodities and articles of necessity are cheap enough, or where the industrial advancement is at a high pitch.

Unfortunately, ours is an industrially undeveloped country which has been trained as a market for imported commodities. It cannot be said to be industrially advanced unless a fair number of heavy key industries are established in it. So industrialisation is of paramount importance to our country. The development of industries is an urgent necessity to-day to balance the occupations of the people between agriculture, industries and services. Moreover, industrialisation is necessary not only for the material prosperity of the country but is also most vital for its security and independence. And every modern country relies more and more on industries for its income as it advances in civilisation.

Industry is merely a transforming process whereby natural resources are modified through a series of operations, often extend-

ing over a period of several years, into commodities having utility or which are required to satisfy the wants and needs of the community. Industry may be held to include not only ordinary manufacturing processes of all kinds, large or small, hand or machine, but also agriculture, mining and methods of transport.

A vital economic principle on which healthy industry should be based is that of providing commodities and services at minimum and preferably diminishing costs. The reduction of production costs has always been obtained through improvements in manufacture resulting in greater yields for a given expenditure of land, labour and capital. Manufacturing advances are won by the introduction into industries of new knowledge which gives rise to the most efficient and socially most benefitial productive methods. By scientific research our country can also re-vitalise flagging and moribund industries and maintain a high standard of living and employment for its nationals. The possibilities of development in methods of food production, industrial production, transport, in the wide range of natural resources available and in the economic location of productive enterprises as well as in many other directions, are such as to warrant enlisting all the aid which scientific research can render.

It is not only the invention of machines or perfection of new processes of production, that demands scientific and technical knowledge. With the expansion of the market, the processes of production and distribution of goods have become more and more complicated. Where formerly a producer had to consider only the requirements and tastes of his immediate environment, a producer in the modern world has to calculate the availability of supplies in many countries, the comparative costs of production at many stages, facilities of distribution over wide areas and the taste and capacity of people in many regions. Higher executives of modern industry must, therefore, possess highly developed skill and intelligence, in addition to a wide knowledge of the world. Even the operatives, if they are to be skilfull and productive, must have some knowledge of the mechanism of the machines they handle and the way they behave. Modern forms of industry and commerce therefore, demand a good general education from people at large and highly developed knowledge and skill from the higher administrative and scientific personnel.

Because of the current emphasis on State Planning and the increasing intervention of the Government in economic activity it has lately become far too usual to regard the shortage of qualified personnel as a problem peculiar to public administration. This of course, is not the case. The dearth of desirable and competent executives is a difficulty in the private industrial sector too and it is a difficulty which is likely to loom larger as higher standards of efficiency and integrity are demanded of private enterprise as the times become more exactingly critical.

The complaint has often been made that private enterprise in this country has failed to create a body of business executives of recognised qualifications and standards, in its managerial ranks, as is to be found in industrially advanced countries. Our business leaders and industrialists should recognise that organised institutional training on the basis of modern education is becoming increasingly necessary for the managerial class of to-day and to-morrow.

Lastly, over the whole field of economic policy, planning and execution hangs the problem of India's 370 million nationals and of the 4¼ millions that are added every year to our population. The growth of

population is the most terrifying dynamic factor in our country. It gives an impelling urgency to the need of improving agricultural production and then opening the way to industrial expansion. If we cannot provide sufficient food on which they are to live and cannot provide them with fruitful and efficient employment in industry, India may come to a disaster and our newly hard won freedom itself may be thrown into jeopardy. How to provide food for them and how to provide them with useful and productive employment are the two crying needs of the time. The steadily increasing population not only fails us to do away with the deficiency in food but also threatens to cut at the very roots of our development plans. Self-sufficiency in these circumstances not only means increasing the supply. it also means restricting the demand. Hence the population factor is quite as important as the growing of more food or the producing of other economic commodities and must be kept in healthy check through a nation-wide campaign for the limitation of population by way of Family Planning.

PRESIDENTIAL ADDRESS*

B. VISWANATH

(*President, Delhi Branch*)

The programme provides for a presidential address. Before I speak of the address, I shall make a brief reference to the annual report.

The report is a record of good work done. Your Secretary and your committee have good reasons to be satisfied. We congratulate them.

The Association is six years old. It has not yet received the necessary recognition as a Trade Union. It is, however, gratifying to note that in several instances, the concerned authorities viewed sympathetically the representations made to them and redressed grievances found to be genuine. Whether as a trade union or as a registered society we can be effective as scientific workers, only if two conditions are satisfied. *Firstly*, our membership must be very much more than what it is now and we must have among us representatives of all sciences ; *secondly* we must educate correctly parliamentary and public opinion on what science can do and cannot do, and that if the country is to derive full value from scientific workers two conditions are necessary.

(i) they must be thoroughly qualified to do the job,

(ii) the workers must get adequate remuneration.

What may be considered adequate remuneration is a matter for discussion, but the point I wish to make is that, apart from considerations of living wage, the emoluments should be such as will not compare unfavourably with others. Otherwise young men will not be attracted to the science line that they like most. If this happens the results will often be low standard of efficiency and with efficiency go most of the virtues that collectively make up an able and contented unit.

I would draw your attention to the item on Questionaire on Economic and Working

*Delivered at the Annual General Body meeting of Delhi Branch held on March 21, 1953

Conditions of Scientific Workers mentioned in the report and urge on the members to supply this information immediately. You will appreciate that without facts and figures, your committee will not be able to do anything in the matter and the resolutions will remain only on paper. It is also time that the relative advantages and disadvantages to scientific workers in organising themselves as a trade union or a registered society, were carefully examined and effective action taken as soon as possible.

The presidential address is a tradition established by scientific societies for the annual meeting, apart from the observations which the President may make on the affairs of the association. Perhaps the tradition is a good one. The social part of the meeting is, admittedly interesting. The tea, the discussions, meeting old friends and making new ones, are all delightful.

It is, however, doubtful whether a message on a scientific theme given by one scientist to another in the form of a presidential address, will awaken a resounding chord in the hearers and that, in a season when every one is tired of hearing or reading innumerable presidential and convocation addresses.

Could the convention be improved ? Perhaps the best improvement is to omit the address from the programme of the day : some may think it unorthodox, and may not be willing to give up a traditional ritual. An alternative is to have a debate on the presidential address. That is the democratic way. The address should be on a subject of wide interest and should be circulated in advance.

There is, however, the risk of a pleasant afternoon meeting being spoilt if the debate leads to violent disagreements between "experts". In the domain of science, as elsewhere there will always be certain areas, so to speak, in dispute, and experts will continue to disagree about many things, but they press forward as a body to the common goal of truth.

If nations disagree they resort to war cold or hot ; when politicians disagree among themselves they circumvent ; when a politician or a policy maker or an administrator disagrees with experts, expediency decides what to accept.

If experts disagree among themselves, they may express themselves in hard flung words. Ultimately, however, they turn back to their work and institute still more studies to decide their disagreements and settle points in dispute by marshalling still more facts in support of one side or the other.

The disagreements are usually between experts in special fields of science and the dispute and its outcome are of interest only to a very limited circle of scientists. The lay public are not interested at all.

There are, however, occasions when differences or disagreements between experts and/or the results or findings can be of considerable significance even outside the academic or scientific circles, requiring investigation from several angles.

Such a one, at the moment, relates to the large differences in the estimates of the total production of food-grains as obtained by (1) the traditional official method (2) crop cutting surveys and (3) national sample surveys. According to one agency (No. 3) the production of food grains is about 60 million tons as against 45 million tons according to (1) & (2)—15 million tons more than the 45 million tons which form the basis on which all our food and agricultural plans are made.

Thus far, the assumption has been that the gap between production and requirement is 10%, i.e. 4.5 million tons. On this assumption we have been importing huge quantities of food grains at an enormous

cost and in increasing quantities per capita. Huge expenditure is being incurred for the storage and distribution of food grains ; and extensive food and agricultural production schemes are being financed at a heavy cost.

The consequences of these procedures are :—

(i) that by imports of food grains we are subsidising at a heavy cost, agriculture elsewhere outside the country,

(ii) at home a feeling is created that the states are under-estimating production and over estimating deficits.

If, as the National Sample Survey estimates show, the production of food grains is really more than three times the requirement, it follows that all our plans and programmes require drastic revision. The Govt. should stop food grains imports and abandon food controls and rationing. Can that be done ? The position is one that may be described as a "Crisis of responsility".

If our statistics are accurate and reliable, problems, plans and programmes can be raised from the plane of doubt and controversy to the plane of constructive thought and action. The question is on what estimate is reliance to be placed ?

As early as the year 1907, Jacob studied the methods of collection and compilation of data on area and production of crops and the reliability of the estimates.

Twenty years later, the Royal Commission on Agriculture in India, examined the subject and found that the figures for yield were being continuously checked by crop cutting experiments and that the averages for several years were certainly far more accurate than the annual estimates of yield.

Since 1944, there have been in progress crop cutting surveys for the assessment of production, employing modern developments in sampling techniques and in interpretation.

It is against this background of nearly 40 years of continuous enumeration by crop cutting experiments that the production of rice, wheat, ragi, jowar, bajra, maize, barley is put at 45 million tons and including gram at 49 million tons.

The estimates of over 60 million tons by the National Sample Survey are based essentially on the quantities of consumption of food grains by the interview method. The premises are different.

This is not the occasion nor is there the time for a detailed consideration of the several factors affecting the estimates and the direction in which checks may be made. The point to be noted is that the production survey is concerned only with eight food grains includiug gram while the consumption survey, as would be expected, perhaps includes 14 more different varieties of cereals and 20 more varieties of pulses, all of which are produced and consumed in the country.

The reliability of the statistical data has to be checked from so many directions by so many branches of science. Members of the Association trained in different science disciplines can make useful contribution in reconciling the differences and disagreements in the estimates arrived at via different pathways.

NEWS AND VIEWS

International Social Sciences Bulletin.

Unesco is publishing an International Social Science Bulletin with a view to acquaint social scientists in various countries with work conducted by national and international organisations, as well as individuals concerned with an objective approach to the study of international relations in the widest sense.

Vol. IV No. 4 of the Bulletin which has just been issued is divided into four parts, Part I contains a survey carried out by the American Political Science Association among the political science departments of 75 American Universities showing that 308 of the 797 current research projects dealt with international relations and that out of 308, 198 were, "area studies." In this part, the writers have tried to clarify the term "area studies" scientifically and have not bothered about the philosophical and ethical base of what they are trying to do.

Part II contains the introduction of various international institutions and bodies with their activies in detail.

Part III contains essays on various international topics, reports etc.

Part IV contains the review of variety of documents, periodicals and books.

The Bulletin is a quarterly and is available with the distributors for Unesco publications @1 dollar per issue : Annual subscription is 3.5 dollars.

National Institute of Sciences of India.

At the Eighteenth Anniversary General Meeting of the National Institute of Sciences of India, the following were declared officers and members of its Council for 1953 :

President :	Dr. K. S. Krishnan
Vice-Presidents :	1. Prof. K. N. Bahl
	2. Prof. S. K.Banerji
Treasurer :	Prof. D. S. Kothari
Foreign Secy :	Prof. P. C. Mahalanobis
Secretaries :	1. Prof. R. C. Majumdar
	2. Dr. B. P. Pal
Editor of Publications :	Prof. J. M. Sen
Members of Council :	Prof. K. N. Bagchi, Dr. J. L. Bhaduri, Prof. S. Bhagavantam, Prof. B. B. Dey, Prof. A. C. Joshi, Dr. V. R. Khanolkar, Prof. C. Mahadevan, Prof. S. K. Mitra, Dr. M. A. Moghe, Dr. B. Mukerji, Dr. H. S. Pruthi, Prof. B. Sanjiva Rao, Prof. M. N. Saha, Dr. V. Subrahmanyan, Prof. N. R. Tawde, Dr. A. C. Ukil, and Dr. K. Venkataraman.

Representatives of Government of India and other Co-operating Academies.

Government of India	—	Dr. S. Krishna
Asiatic Society	—	Dr. S.P.Agharkar
		Dr. U. P. Basu
National Academy of Sciences, India	—	Prof. A.C.Banerji
		Dr. R. K. Saxena
Indian Academy of Sciences	—	Nominations not yet received
Indian Science Congress Association	—	Dr. D. M. Bose
		Dr. B. N. Prasad

Ex-officio Members (Past Presidents) Dr. Baini Prasad, Dr. J. C. Ghosh, Dr. D. N. Wadia, Dr. S. S. Bhatnagar, Prof. S. N. Bose, Dr. S. L. Hora.

THE SCIENCES OF MAN AND SOCIETY

PAUL H. MAUCORPS

Charge de recherches at the French Centre National de la recherche Scientifique.

(*Reproduced from Impact of Science on Society Vol. III No. 3 p.* 197-209)

(Concluded from January, 1953 issue)

No system of explanation better reflects the uncertainties and social confusions of our time than sociometry. Setting out to go beyond the strictly individual level, its originator, J.L. Moreno, turned his attention to the study of inter-individual relationships. He analysed, often shrewdly and accurately, the different forms of interaction, ranging from inter-individual association to opposition or indifference, and worked out techniques for measuring the currents of attraction or repulsion which make themselves felt within a community. It might have been expected that, on these foundations, he would have attained a genuine understanding of the social phenomenon even though only of its simplest form, the group. But the venture was sidetracked into therapeutic considerations, which in the end came very close to those of the psycno-analysis. Starting off to investigate the forms of aptitute for social life and the types of groups, sociometry, under-pressure from a public haunted by anxiety, turned towards a type of dramatic confrontation which had eathartic pretentions—psychodrama and sociodrama. Disowning its origins and initlal ambitions, it worked out a pseudo-conception of the group, described social relationships in which emotion stifles function, established an artificial system of leadership types, scorned social complexes and their action on one another, and passed over with no further investigation both the class struggle and the very birth of classes. In a word, sociometry has become one more drug in the collection of psychological narcotics demanded by a society which is already over indulging in psychoanalysis, alcohol, barbiturates and aspirin tablets to avoid facing the essential questions and solving the urgent problems which confront it.

On the practical plane, social imperative are ceaselessly multiplying in the modern world, necessitating new researches and the use of specialized techniques in the sciences of man. It would be wearisome to enumerate them. To confine ourselves to social psychology, we have only to look at present-day societies to see clearly what tasks science has to perform. For instance, the constant development of communications by itself sets difficult and urgent problems. The use of the printed word and picture, of the radio, films and television, is the basis of the psychology of perception. This has brought out a certain number of facts whose importance is far from negligible. Thus it has been shown that individual reactions to these various calls on the attention depend simultaneously on the nature of the external stimulus and the functional characteristics of its recipient. The establishment of this fact served as introduction to many lines of research on the composition of persuasive agruments and the best choice of vehicles of propaganda. It also led to detailed studies of the influence of motivation, of emotional tone and of memory in the process of the acquisition of knowledge; it was through these studies that the general principle of the functional selectivity of perceptions was recognized. This principle is that not all external stimuli reach their

mark; they are subject to selection and are interpreted differently by each individual. Facts and events are not impartial and do not give birth to identical perception and knowledge in every man; they are noted and assimilated in the light of the needs and the whole personality of the receiving individual. In this connexion, many specialists have speculated about the conditions of objectivity. In what conditions and to what extent is it disturbed? When does news become propaganda? What is the range and what are the limitations of the instruments of persuasion? Are they capable of abating prejudices, changing attitudes and reversing opinions? These are all questions which current developments compel the psychologist and the sociologist to consider. Can they answer these queries, whose gravity and urgency they are the first to admit? The psycho-sociologist, at once the subject and the object of research, and under pressure from society, evades certain problems, deludes himself, and helps to accentuate in practice the permanent lag between the sciences of man and society.

In fact, the research-worker may completely mistake the significance of his period and rush off to tackle the wrong problem. A spectacular example of such a piece of self-delusion is provided by psychology. Psychology is, quite properly, concerned with educational and vocational guidance, and has for 50 years devoted considerable efforts to the problem of measuring children's intelligence. For this purpose, it has evolved a great number of mental tests and has applied them to thousands of children of all ages. This made it possible to give every subject an intelligence score, by comparing his performance in the test - which was called his mental age - with his actual age. The "intelligence quotient" theoretically determined, and very often did determine in practice, the child's future. It was only quite recently, when sociological factors were given greater consideration, that psychologists realized the enormity of the mistake they had been making. They awoke to the fact that success in these tests depended directly on the child's social and economic background; the children of the well-to-do classes appeared to be intellectually superior to those of the poor. But was it really a question of intellectual superiority at all? Analysis of the content of the tests brought out clearly the preponderance in them of verbal elements, and the specialists were forced to admit that the results merely reflected differences of cultural absorption. The son of a business manager and railwayman's son differ essentially in the quality and extent of their ability to express the ideas which they have accumulated in the course of their family and social contacts. The difference in their intelligence quotients reflects the difference in their living conditions and is no evidence at all of their respective mental capacities. This "masking" effect has been so generally recognized that psychologists have exerted all their ingenuity to devise new tests into which cultural influence would not enter and in which the acquisition of knowledge would play the smallest part possible. Whatever may be the future and the real importance of this attempt to set things right, it must be admitted that the foundations of educational and vocational guidance have been, to say the least, extremely shaky. The tests carried out over so many years had been yielding exactly the opposite results from those intended. Because they had not been considered in their social context, they became an instrument of social conservatism. Instead of giving everyone a chance to develop his potentialities and bringing new blood into the ranks of society's leaders,

this system of tests, blind to the point of confusing cause and effect, merely helped the privileged and ended by sustaining what it had originally set out to avoid - a psychology of class.

The sciences of man abound in examples of this kind, where intentions and results cease to have the slightest logical correspondence. The best course is not to wonder too much at this but rather to seek to provide against such confusions and contradictions by uncovering their real causes. Even today the shortcomings of the sciences of man which claim to be free from the trammels of history and the present social environment are so evident that there is no point in dwelling on them. It is clear, for instance, that the progress of industrial psychology, the establishment of "personnel relations" departments in factories, the use of collective stimulants, and all the recent amenities provided in the interest of the human factor, are at once the result of technological progress, evidence of concerns going beyond the narrow limits of the individual, and a sign of partial concessions on the part of a system hesitating between profits and social peace.

In the same way, the Stakhanovite experiments and achievements would be incomprehensible apart from their economic and political context - a socialist society in the making. Finally, there is a major problem of social psychology, that of leadership, which faithfully follows developments in the environmental super-structure. We need only recall the German system under the Nazis to be convinced of this. In the parliamentaly democraties no satisfactory solution to this problem has been found, and this failure points to a contradiction inherent in this political and social system and to the hesitations which spring from it. An American psychologist, W.O. Jenkins (1947), after a critical analysis of all the psychological data so far collected on the most varied types of leadership functions, was only able to arrive at the following meagre conclusions, in which the individualist and the "situationist" theses alternate :

1. The functions of leader are essentially determined by each individual situation. The leader of a group can be defined only in relation to one of the particular activities of the group facing a given situation. This at once explains why very different individuals can assume certain functions of leadership with equal success aud why one individual, according to the specific kinds of leadership alloted to him, displays a very marked variation in efficiency, and, in some cases, amazing deficiencies.
2. Practically all research confirms that leaders are superior in one or two ways to the other members of their group. This superiority has to do, more particulary, with their technical abilities and their general knowledge. Intelligence plays a practically negligible part, and an interesting study has shown that political, social, military and other leaders, whose influence and prestige were nevertheless proved and whose qualities of leadership were clearly established, were spaced out along a very average curve ranging pathological imbecility to genius.
3. Leaders having certain resemblance to members of their group seem to be more efficient. In particular, community of cultural and ideological interests and a similarity in social background create a propitious atmosphere for authority.

4. Certain characteristics—age, physique, economic and social position and certain features concerning the deeper personality, appear decisive in a few particular cases. But the present data are insufficient to lay down any laws with certainty—a finding which greatly reduces the reliability of predicting an individual's success in a position of leadership by psychological methods of investigation alone.

The blame for these failures, inadequacies and misinterpretations cannot be laid entirely on neglect of the historical factor and failure to view phenomena in their context as a whole. While misunderstandings or perceptional distortion of social movements may influence science so far as to throw it out of order, science in turn has repercussions on society. Science and society are perpetually interactive, and nowhere are these reciprocal influences harder to disentangle, more conducive to misunderstanding in interpretation, and more fraught with calamity, than in the sciences of man, and particularly in social psychology.

That does not mean that this incessant ebb and flow, these ceaselessly renewed reciprocal pressures, necessarily give rise to chaos and keep misunderstanding alive. Society often calls on science to solve problems which have been clearly and correctly stated, and the latter often puts forward in return solutions from which society benefits. One of the many examples of such beneficial reciprocity deserves special mention. It concerns the problem of rumours harmful to the national morale, which arose in the United States of America at the beginning of the second world war. Immediately after the lightning attack on Pearl Harbour and before the American war machine had time to achieve an output sufficient to reassure public opinion, the authorities were alarmed to note that more and more socially undesirable rumours, prejudicial to the armaments effort, were circulating. The psychologists were called out and set to work immediately. They began by listing the different types of rumours and studying their distribution throughout the country. They thus found that rumours indicative of hartred and hostility — known as "wedge-driving rumours" - either towards minorities (Jews and Negroes) or towards the Roosevelt government, the Allies or the American armed forces, were far more frequent than those inspired by fear ("fear rumours"), concerning epidemics, the fifth column, atrocities or secret weapons, or by hopeful anticipation ("pipe-dream rumours"), concerning the making of peace or the sudden death of Hitler. Furthermore, significant regional differences were revealed. The false rumours and slanders about the Roosevelt administration tended most often to spring up and to be propagated in the Western States, where rumours about the activities of the German and Japanese fifth columns relatively infrequent. Once this first list had been completed, it had to be kept constantly up-to-date, and practical arrangements had to be made to scotch and counteract the rumours. This was the task set for the "rumour clinics", bodies which were set up all over the United States and which specialized in the detection of false rumours and in the psychological analysis of their origin had credence. Such was their success that by the end of 1943 they had outlived their usefulnes. Psychology applied to a problem of national security had brilliantly proved its efficiency and had brought about a real change in society. Science in return benefited from the incident. The impetus had been given, and a psychology of rumours began to take shape, while

research was pushed further and further. Deserting the general public for the laboratory, specialists carried out extremely detailed experiments on the processes by which rumours are reduced to a common level, singled out or assimilated, on the distortion of perception, on memory and the reliability of evidence. There is no doubt that these new contributions may in turn be put to profitable use by society, either in the field of information, for instance, or in that of forensic psychology. Considered as complementary in outlook, science and society thus constantly advance each other's interests and maintain a sort of chain reaction from one to the other.

But it is by no means true that this mutual influence is invariably so satisfactory. Incalculable harm has also been done to society by the sciences of man. Certain of their specialists, carried away by their technical enthusiasm or bogged down in the routine of method, have committed veritable outrages against society as a whole or against particular social groups. Some best-selling authors, on the basis of a psychological interpretation which, at best, is much over-simplified, have described propaganda activities as "mass rape". In point of fact however, individuals offer a far better resistance than is generally believed to direct attempts at persuasion, and there would seem to be more justification for using the word "rape" in relation to public opinion polls. There is nothing wrong in the theoretical intentions of this system of investigation, which is now widely used in the political, social, economic and professional fields. It is always interesting and instructive to know what and how strong are the needs, trends, attitudes, beliefs and opinions at issue within a social unit. The crudity, apparent naivety, and tactlessness of some of the questions are mere technical weaknesses which can always be set right by more careful drafting or by greater ingenuity. Nor does the worst danger of this system lie in the fraudulent use of its results. It is true that organizations (which are in fact commercial rather than scientific) do not hesitate, during political elections, to assert the reliability of stastical forecasts, but this proceeding can only be regarded as both stupid and dishonest, capable of misleading only the uninitiated. It is stupid because experience has shown that the undecided, who often represent a very large percentage, do not finally make up their minds how to vote until the last moment, and the final onslaughts of the rival propaganda machines, towards the end of the compaign, exert a partieularly strong and effective influence, which the public opinion surveys have practically no time to take into account. It is dishonest, because the periodical publication of these forecasts is seldom intended to give the public information, but rather to influence it by tendentious predictions and, in particular, to draw the floating vote into the pleasant and reassuring camp of an artificial majority. The essential unsatisfactoriness of this method of investigation lies in the fact that the sample questioned can never claim to represent the whole population. This discrepency is not owing merely to the fluctuation of the samples taken but to the fact that the subjects are affected by the questionnaire. When anyone has to answer a series of questions and is forced to think them over and make a choice, the process itself modifies his attitudes. beliefs and opinions. Certain ideas are suggested to him: doubts are sown; questions which he had never asked himself cross the threshold of his conciousness. After questioning, the subject is no longer the person he was before, the person who was selected for questioning. His replies

are not those of the selected individual. This deterioration in the instrument is further aggravated, when for reasons of economy, polls use the same sample several times running. In the very frequent cases of chain influence it becomes impossible to tell what the sample really represents.

It may, of course, be objected that this deterioration in their instruments is inherent in the sciences of man, and therefore inevitable. Every test every attitude scale, every questionnaire and every interview serves in some degree to transform the subject. There is no doubt about this, and it must be admitted that specialists have not always taken it sufficiently into account and that apparently sound experimental results have been proved to be false by facts. To consider only one of the most promising methodological processes of social psychology, introduced under the name of "group dynamics" by K. Lewin, it may be asked whether laboratory experiments do not involve an element of the artificial which distorts their exact signification. It is possible that the explanatory schemes suggested by this school—relating to the processes of uniformity of opinion or to cohesion within limited groups or to the rejection of those not holding the accepted views, for instance—may be correct in broad outline. But it is just as probable that the subject of observation-free of artificial influence—does not correspond exactly with the subject of experiment. This gap needs to be bridged by the combined use of experiment and observation.

Another example of social transformation instigated and vitiated by science is furnished by the problem of minorities. Considerable efforts have been made in many countries to reduce the prejudices which divide the various ethnic, economic or religious minorities from the bulk of the population. Psychologists have sought to fathom in precise instances the actual content of the notion of "social distance." The origins of antisemitism and those of anti-negro or anti-communist prejudices have been frequently investigated, and palliatives have been considered. But in most cases these have proved disappointing because they were intellectually unsatifactory—a fact which the simultaneous use of differing approaches—psychiatric, psycho-analytic, cultural and semantic—has ill concealed. Whatever the causes of this failure (which it would in any case be difficult to explain while confining attention to the narrow field of national minorities, without considering that of tolerance and international understanding) individuals and communities have become more aware of the existence of this crucial problem just beause of the efforts of scientific research which are discussed around them. This realization of the problem has resulted in crystallizing social attitudes and minority of positions. Because it has come to be more clearly perceived, and in fact given statistical form, the phenomenon of social distance has grown stronger and spread wider. Every individual is tempted to discover that he too belongs to a sector of opinion or activity which is distinct from the whole social unit to which he belongs. Naturally he succeeds, for everyone is always an alien to somebody. Being unprovided with genuine curative resources, social psychology has thus encouraged exhibitionist individualism and minority claims. The latter have already taken alarming forms. The Italian neo-Fascists and the West German neo-Nazis are not content with the right to vote; they demand from their fellow-citizens the respect due to a group with a gallant past, now suffering persecution. Recently the

homosexuals have complained about their isolation and their own lack of organization and have claimed the status of a minority. It is to be hoped that social psychology will endeavour, as it progresses, to repair its youthful excesses before the man in the street finds himself branded as a sectarian for disapproving of gangsters or prostitutes.

Having drawn attention to the indissoluble unity and the extensive development of the sciences of man and emphasized the central position of social psychology in the "cycle of knowledge" we have attempted, with the aid of a few examples, to show that the future of these branches of study depends on a clearer aware-ness of their interaction with society. While so doing, we have stressed the pitfalls in the path of any abstract speculation, divorced from actual space and time, and little concerned with practical application in the development of methods. We have also exposed the ills arising from pretentious technicality, which is at once a sign of social disorder and source of confusion. Misunderstanding of the dialectical interaction of science and society appears to us the most serious obstacle both to social progress and to scientific advance.

The abuses and extravagences which we have denounced should not be taken as meaning that the sciences of man are irretrievably lost in a blind alley and are doomed to helplessness. Our main aim has been to indict the static conception of things, the more extreme forms of individualism, and the generalizations of a naive sociology run wild, we have also felt it our duty to show up certain impostures and the futility of the far too common habit of merely collecting data, which leads to nothing. In short, it seems to us that the future of sciences of man if they are to benefit society must be resolutely experimental, and constantly related to and measured against society.

N. R. DAMLE

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ACTIVITIES OF THE BRANCHES

Delhi Branch :

Shri K. P. Karunakaran of the Indian Council of World Affairs who has recently returned from a tour of the U. S. A. addressed a meeting of Delhi Branch of the Association of Scientific Workers of India on "Social Sciences in America To-day". Prof. B. N. Ganguly of the Delhi School of Economics was in the chair.

Shri Karunakaran remarked that one was not sure whether the trend in the United States of America today towards "thought control" was superimposed on an essentially democratic framework or vice versa. A great change had taken place in the United States after 1945. Honest research has been curbed to a very great extent in the field of the study of international relations, which has its repercussions on other branches of learning. The attacks on UNESCO, Institute of Pacific Relations and University Professors were all impressions of the "new hysteria in the United States." He quoted with approval Justice Douglas, who has been saying that there was an ominous trend in the United States.

He further said that the people of the United States had no tradition of fedualism and the initiative and invectiveness were encouraged to such a great extent that American achievement in different branches were remarkable. During the depression there was a great display of genius in arts and science. Nevertheless, Christian ethics had deeply influenced American people.

Prof. B. N. Ganguly said that a great deal of fruitful work was being done in the field of economics and sciences in the United States.

2. ANNUAL ELECTIONS

The Annual General Body meeting of Delhi Branch was held on the 21st March, 1953. The following were elected as office bearers and members of the Executive Committee :

President	Dr. B. Viswanath
Vice-Presidents	Dr. J. J. Chinoy
	Dr. A. Sen
Secretary	Shri I. S. Mathur
Joint Secretaries	Shri S. N Banwet
	Shri C R. K Das
Members.	Dr. D. V. Karmarkar
	Dr. Y. V. Kathavate
	Shri K. V. Krishnamurthy
	Shri K. Kashyap
	Shri K. Ralagopalan
	Shri V. K. B Unni
	Shri Narendra Singh
	Shri C. E. J Daniel
	Shri R. N. Nangia
	Miss S. Hoon
	Shri B. S. Krishnamoorthy
	Shri B V. Subbiah
	Shri Shanti Swaroop Sharma

The Secretary reviewed the activities of Delhi Branch during 1952-53. The membership of the Branch stood at 228 distributed as follows ;

Name of Units	*No. of Members.*
New Pusa	37
Commerce and Industry	40
Food and Agriculture	15
Indian Meteorological Office	12
Delhi Cloth and General Mills.	43
Malaria Institute of India	17
C. S. I. R.	17
All India Radio	17
Unattached	30

Banglore Branch :

1. ANNUAL ELECTIONS :

A General Body Meeting of Bangalore Branch was held on the 27th March, 1953. The following were elected as office bearers and Executive Committee for 1953 :

President	Dr. S. Ramaseshan

Vice-Presidents	Dr. B. S. Ramakrishna
	Mr. A. N. Radhakrishna
Secretary	Dr. A Bhati
Joint Secretary	Mr. P. D. Dasappa
Treasurer	Mr. V. R. Subramanyam
Members	Mr. M. N. Iyengar
	Mr. Prabhakar Rao
	Mr. S. Verma
	Mr. Soundararajan
	Mr. B. N. Somasekhar
	Mr. P. T. Narasimhan
	Mr. P. Sreenivasan
	Mr. A. R. Sreenivasan
	Mr. B. Venkatesh
	Dr. S. Dhawan

SECRETARY'S REPORT

The outgoing Secretary Mr. M. V. Bhatt presented a brief report of the working of Branch during the past year, which is reproduced below :

"I rise to present before the assembled members of the General Body a brief report of the working of our branch during last year. (March 1952 to March 1953). I shall not merely enlist the various activities and confine myself to expressing vague hopes and proferring advice. This, I consider gentlemen, is an occasion for stock-taking and self-examination. I shall, therefore, try to describe to you what we set out to do, what we did and what we left undone.

"I shall treat the matter, before me under two heads, viz. (1) Organizational Work, and (2) Programme and Activities.

"*Organizational Work.* In the beginning of the year, it was planned to strengthen the organization firstly by increasing contacts amongst executive committee members by frequent meetings and secondly, by increasing membership and making the organization representative of the scientific workers of the Institute. The Executive Committee met thirteen times during the year and discussed a variety of topics and programmes. At the instance of the President, informal meetings were held every Friday evening. The frequency of Executive Committee meetings and weekly Friday meetings were a great success. Although, unfortunately, the enthusiasm of the members flagged towards the later part of the year, may I venture to observe that this close contact of members is a great forward step.

"*Membership* : The membership at present is sixty six of whom thirty seven have newly joined. We started with a membership of fifty-six of whom twenty seven have left for one reason or other. The collection of arrears of subscription is not complete. After repeated appeals, we have been able to collect only about Rs. 165/-. I am distressed to observe that some responsible members have not yet addressed themselves to the task of sending their subscriptions. Our machinery for enlisting members and collecting subscriptions is slack and inefficient. On the whole, our efforts to increase the membership have been sporadic, perfunctory and halfhearted. We suggest therefore that a member of the Executive Committee henceforth be appointed, charged exclusively with the work of enlisting members and collecting their subscriptions in co-operation with the Treasurer. We also suggest that the Treasurer should take as much interest in collection as in safeguarding and being the custodian of the finances of the branch.

Programmes

"It was decided by the Executive Committee that the following activities should be undertaken :

1. To start and set functioning an Information Bureau to supply information about technical jobs available in industrial establishments, restricted in the first instance to factories round about Bangalore.

2. To collect and arrange in co-operation with the Institute Library, information

regarding scholarships, fellowships, stipends and other educational facilities available at the Indian and Foreign Universities.

"Regarding the first programme, all the preliminary work was done, but due to lack of time, no tangible results could be achieved. We request the new Committee to carry on this work. Coming to the second aspect, in close co-operation with the authorities of the Indian Institute of Science Library, information was assembled and arranged and has now been made easily available. Attempts have also been made to make the information up-to-date. We hope that the new Committee will carry on this work.

"Due to the energy and drive of our President, classes have been started for preparing candidates for A.M.I.E. I am happy to observe that by enabling the less fortunate scientific workers to improve their qualifications and prospects, the Association has been able to render great service.

"Work on the popularization of science was continued. About twentyfive scientific films were shown to the members. I take this opportunity to thank the Scientific Film Society of India for many of the films.

"Four popular lectures were arranged. On March 6, 1952, Mr. V. Ramakrishna spoke on "Freudian Theories" and Dr. M.C. Munshi gave a talk entitled "The Slump—A passing phase" just on the eve (March 15, 1952) of what seemed like a financial crisis in our country. "The position of scientific workers in Germany before and after 1933" formed the topic of a talk by Prof. G.M. Pfestorf. Prof. D.D. Kosambi gave a talk on a very intriguing topic "Science and Freedom".

"Lord Boyd Orr former President of the Association of Scientific Workers of Great Britain addressed our Branch at a brief but very impressive function on 22nd January 1953. After briefly speaking about the origin and growth of the scientific workers of Great Britain he stressed the paramount necessity and the importance of an Association of Scientific Workers in India. He observed that the time has now come for the scientist to take an active interest in the uses to which science is put by the Government of the country.

"In co-operation with a few other scientific associations of our Institute our Branch celebrated the birth centenary of Emil Fischer, the eminent organic chemist, on 29th October 1952 in an impressive way. Dr. B.H. Iyer the Chairman of the function spoke on the life and early work of the scientist. Prof. S. Siddappa of the Central College and Prof. K.V. Giri of the Indian Institute of Science, Dr. P.L.N Rao (I.I.Sc.) and Mr. K. Narayan Rao (Central College) spoke on the different aspects of the work of the great organic chemist.

"Our Association actively co-operated with other scientific societies of the Institute in commemorating the Raman Effect discovered 25 years ago by presenting an address to Prof. C.V. Raman Nobel Lauriate, on 24th March 1953. After the preliminary speeches and presentation of the address by Dr. S. Dhawan, Prof. Raman gave a most thrilling account of the mental, scientific and social background which made his great discovery possible. In middle of August (1952), the Executive Committee decided that a symposium should be held on "Science in Engineering". The sub-committee appointed to go into this matter, examined the different aspects of the subject and contacted various persons in Bangalore and outside, in this regard. Owing to lack of proper response from people outside the Institute it was decided to pigeonhole the proposal for the time being. Starting from a suggestion by

Mr T.K. Wadwani the Executive Committee requested Mr N. N. Narayan Rao and Mr. T.K. Wadwani to go into the preliminaries and then to initiate a group discussion on "The conditions necessary for doing more and better research work in our country". More than half a dozen meetings to discuss this question were held. No definite and clear conclusions have yet been arrived at. We recommend that the discussion be continued during the next year.

"The attention of the Executive Committee was drawn to some disability under which the non-graduate Laboratory Assistants were suffering, viz. not being allowed to avail themselves of the facilities of the Common Mess. A representation in this matter to the Institute Authorities by the Association promptly redressed the grievances of the non-graduate Laboratory Assistants. Now they are allowed to be the members of the Common Mess.

"Dr. S. Dhawan and Dr. A. Bhatti represented the Branch at the annual meetings of the Association held at Lucknow and usefully contributed to the discussions.

"An account of the activities of the Branch will not be complete without the mention of a pleasant excursion we had on 12th February 1953 to Kolar Gold Fields. 35 persons participated. The excursion, I am told, was a great success.

"Gentlemen, I hope I have not wearied you by this long tale. I take this opportunity of thanking my colleagues of the Executive Committee for their indulgence and co-operation. I thank particularly the President, Dr. S. Dhawan, to whose earnestness, foresight and judgement, whatever the Branch has achieved is in no small measure due. Again and wholeheartedly I thank my colleague and friend Mr. M.A. Cohly for his unstinted support and co-operation. Lastly, Gentlemen, I thank you all for your confidence which I had the privilege to enjoy. Thank you."

Kanpur Unit.

A meeting of the Kanpur Unit was held on the 21st March, 1953.

The following were elected as office bearers:

President	Prof. J. M. Saha
Vice-President	Prof. J. P. Shukla
Hony. Secretary	Shri H. C. Srivastava
Treasurer	Dr. S. Mukherjee

Ways and means to increase the membership of the organization and to make it more popular were discussed. The members were of the opinion that the Association could be made popular with the chemists and engineers of the Sugar Factories in India if a sugar technology unit could be brought into being under the auspices of the A. S. W. I. If this were possible, then the chemists and engineers could discuss their problems during the convention of the Sugar Technologists' Association which is held in the permises of the Indian Institute of Sugar Technology in the month of October or November every year.

Bombay Branch

1. A Sub-Committee consisting of Mr. N. K. Varma (Convenor), Dr. Mehta (Haffkine), Mr. Bellare (Haffkine), Dr. Ramsarma (Raptakos) and Dr. R. H. Usmani (Cilpa) has been formed to consider the question of organising evening classes in science and technology by the Bombay University on the same model as those in England.

2. A Vijnan-Karmee Sub-Committee consisting of Mr. R. M. Adhikari (Convenor) Mr. Y. S. Nimbkar and Dr. R. V Usmani was formed to collect articles, etc. from eminent scientific workers for Vijnan-Karmee.

3. The following film show were arranged:

Film	*Place*
Television, Atomic Energy, California University.	G. S. Medical College Hall.
Modern Surgery, Valley of Tennessy.	Tata Memorial Hospital.

4. Dr. R. G. Chitre was entrusted with the work of collecting data regardiug those scientific workers who are trained abroad and who are either unemployed or malemployed.

5. In reply to representations made earlier, the Government of Bombay have communicated that the representations received from the Association in matters relating to Government servants engaged in scientific work would be considered on merits.

Reinstatement of Shri V.R. Joshi.

Shri V. R. Joshi, President, Association of Scientific Workers, Ordnance Establishments, Kirkee, which is affiliated to the Association of Scientific Workers of India, had been suspended from service earlier and had been given a show cause notice for dismissal. The ASWI had also made representations on his behalf. We are glad to report that Shri Joshi's reinstatement has been ordered with effect from 14th April, 1953.

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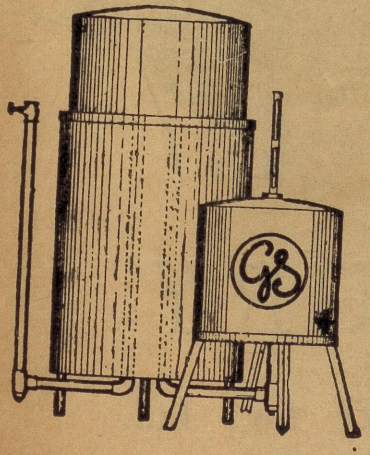
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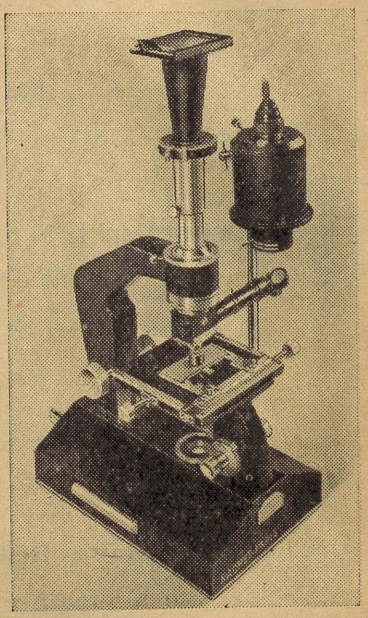
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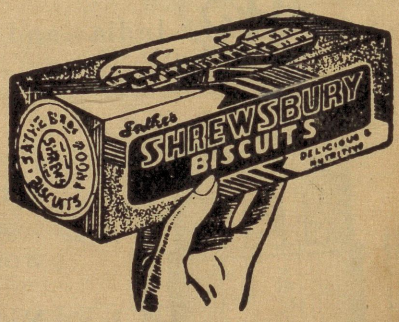
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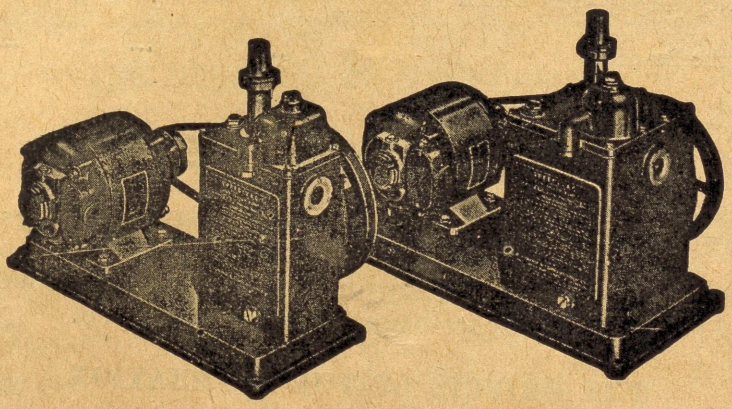
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VIJNAN-KARMEE

विज्ञानकर्मी

VOL. V] June, 1953 [No. 6

THE PROBLEM OF UNEMPLOYMENT

It is reported that a symposium on the problem of unemployment in relation to the Five Year Plan is to be held in Delhi at the initiative of the Congress Parliamentary Party Standing Committee on Planning. This symposium will mark the inauguration of regular planning forum proposed to be started in order to focus attention on different aspects of planning and the Five Year Plan. In this connection it is also understood that the Government of India propose to make a survey of the unemployment problem in this country and for this purpose they intend to procure the services of a foreign expert in order to help the Government to assess the degree of unemployment in this country. It is said that it is not possible to determine the extent of unemployment at present prevailing in the country if any, as there are no reliable data. It is not known whether the Government have been assured by the foreign expert of the reliability of his method of assessment.

The growing unemployment in the country and the need for effective Government action to meet the situation were referred to in the debate on the Finance Bill in the Council of States on 22nd April, 1953. Mr. H. C. Mathur said that the Government seemed to be enamoured of foreign experts. He stated that the Labour Minister had referred to the fact that the Government did not have full information or any agency to collect information regarding the extent of unemployment and he wanted to know what the foreign expert was going to do without the material information. Mr. K. L. Narasimhan remarked that the foreign experts had directly contributed to the problem of unemployment in the country. He referred to the instance of the retrenchment of workers at the Hindustan Ship Yard at Vizagapatam because on account of the extra expenditure incurred on the employment of French Experts, there were no funds available to continue the employment of the workers.

Mr. Mahavir Tyagi, Minister of Defence Organisation in replying to a question in the House of the People on April 30, 1953 referred to the retrenchment of about 1400 workers in the Ordnance Department of the Ministry of Defence. He said that the retrenchment was inevitable as working load in the Ordnance Depots had decreased. He stated that it was the Government's policy to have only as many people in employment as the work load justified. At the same time he promised that the retrenchment element will be reduced as far as possible by taking steps even to manufacture civilian goods in the Ordnance Factories.

As a meeting of the leaders of the Indian National Trade Union Congress held in Bombay on April 26, 1953, it was resolved to ask the Union Government to take early measures to end the retrenchment policy adopted by the mill owners. A reference was made to the closure of certain Textile Mills creating unemployment.

Some Members of the Parliament referred to the possibility of mechanisation of the "Beedi" industry which they feared would result in five lakhs workers out of a total of six lakhs engaged in the industry being thrown out of employment. Mr. D. P. Karmakar, the Commerce Minister, stated in the House of the People on May 14, 1953, that the Government of India definitely and positively disapproved of any proposal to mechanise the Beedi industry. He stated that fundamentally the Government of India was opposed to mechanisation of any particular sector of industry resulting in unemployment, especially at a time in the economic history of our country when it was important to maintain employment as well as to develop increased production.

From the references given above one is really bewildered at the state of affairs. On one hand we are talking of the Five Year Plan and stressing the importance of utilizing to the fullest extent the recent technical developments. On the other hand we find that the Government of India is opposed to mechanisation on account of the fear that some workers will be rendered unemployed. It is very difficult to understand whether the Government have in their own mind made up any specification of the terms 'employment' and 'unemployment.' If the example of the assurance given by the Commerce Minister in the case of the Beedi industry is to be taken as a real sign of the intentions of the Government with regard to the technical development in this country and as the means they could think of reducing

unemployment, then there would be an easy solution of the problem facing us. We could take only one example. In offices there could be room for five times the number of clerks if we dispense with typewriters and duplicating machines. Obviously Government do not intend to go this way.

The Association of Scientific Workers of India has been following the grave situation of unemployment in this country and at its 3rd Annual General Meeting held at Poona in January, 1950, the Association in a resolution expressed its grave concern as regards the deteriorating economic condition of the country leading to mass scale unemployment and hindering the healthy growth of the community. The Association expressed the opinion that the solution of the problem lay in the industrialisation of the country on the basis of a socialist economy. The Association re-affirmed its opinion at its meeting in January, 1951 and urged upon the Government to take action without any delay. The Association considered the question afresh in its meeting held in January, 1953 and passed the resolution :

"Unmistakable signs of an economic recession are already visible in India. This is going to cause widespread unemployment and distress among both scientific and other workers. The Association of Scientific Workers of India reiterates that only by organising and developing the economy of the country, on the basis of socialist economy namely public ownership of means of production, can these periodic "booms" and "slumps" be avoided and science fruitfully applied for the steady progress of our people. It urges on the Government to initiate measures in this direction without delay so that the process of economic decline may be arrested.''

We feel that the problem of unemployment cannot be solved by making arrangements so that the people get something to do in an inefficient way and allowing them to continue to live under impoverished conditions with scanty clothing and food. The aim of the Five Year Plan is to raise the standard of living of the people in the whole country and to ensure useful work for all. The solution of the problem, therefore, lies in the industrialisation of the country for the common good of the people and not for the profit of a few. The means of production must be harnessed for meeting the daily necessities of the masses. If that is done there is no reason whey there should be any unemployment at all.

ACTIVITIES OF THE ASWI

(*A Discussion Article*)

BALDEV SINGH, Central Laboratories, Hyderabad-Dn.

The ASWI completed six years of its existence in January last. It would therefore be of interest to review our work of this period and give serious thought to the future activities of the ASWI in furtherance of its objectives. Unless units and branches take up the types of activity as may enthuse and activise the existing membership and bring in fresh members in large numbers, a flagging of interest, a recession in its activity and a general decline in its strength and usefulness may set in.

That a lack of enthusiasm about ASWI is widely felt may be evident from the following :—

Extract from Calcutta branch secretary's report for 1951 (*Vijnan-Karmee, May* 1952. *p.* 17).

"Though the Calcutta branch of the ASWI has just completed the fifth year of its existence, but I am really distressed to say that the great enthusiasm and zeal which were exhibited among the scientific workers of Calcutta at the start of this Association have considerably dwindled down during recent times. I should mention that this Association which had about 500 members at Calcutta in the first year of its existence had only about 125 members on its rolls in 1950....."

Patna branch, report of activities (*Vijnan-Karmee, July* 1952, *p.* 13).

"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....."

Naihati branch (*Vijnan-Karmee, August* 1952, *p.* 21.)

"The Secretary deplored that in spite of the fact that the branch was active during the year and had adopted many useful resolutions, the membership is still falling....."

It may not be unlikely that the reports above represent the unexpressed state of affairs in some other branches also. This is in marked contrast to the enthusiastic confidence expressed in the Annual Report of the ASWI for 1949 (Vijnan-Karmee, Feb. 1950, Supplement p. 1)—"From the response of the scientific workers, it appears that they are being increasingly conscious of their rights and also of their social responsibilities" and further (Vijnan-Karmee, February 1950, supplement p. 11.)" The activity of the Association helped to create confidence in our co-workers in different fields of activity and brought them closer on a common platform".

The under-mentioned figures of membership of the ASWI help to underline the significance of the above

	Year	*Membership*	
Beginning of	1949	700	(Vijnan-Karmee, February, 1950, Supplement p. 10).
,,	1950	1400	(As above.)
,,	1951	1300	(Vijnan-Karmee, February, 1951, Supplement p. 3).
,,	1952	1500	(Vijnan-Karmee, February, 1952, Supplement p. 18).
,,	1953	1500	(Vijnan-Karmee, February, 1953, Supplement p. 1).

It is evident that the during the years following 1950, there has not been any significant increase in membership, nor can the present membership be said to represent a fair proportion of the very large number of scientific workers in the country. This naturally detracts from the representative character of the organisation.

It might have been of interest to figure out the progress of the various branches but unfortunately their reports in the Vijnan-Karmee do not follow any definite pattern and do not contain the figures of branch membership. However, if it be assumed that branch reports bear a relation to their activities the following figures may be of interest and significance :—

Branch or Unit.	Number of times activities reported in 1950	1951	1952
Aligarh	...	...	Branch started.
Abdullapur	5	5	Branch dissolved.
Amritsar	1	1	nil
Bangalore	2	3	2
Bombay	4	3	2
Calcutta	2	5	3
Dehradun	nil	nil	2
Delhi	10	6	5
Hyderabad	2	4	3
Izatnagar	...	...	4
Jaipur	1	nil	nil
Kaghaznagar	...	...	Unit started.
Kanpur	3	nil	nil
Lucknow	1	1	1
Naihati	2	2	1
Patna	1	2	1
Poona	9	3	nil
Raniganj	nil	nil	1
Sabour (Bihar)	...	...	...
Total	43	34	25

The conclusion (however unpalatable) appears inescapable that branch activities have been steadily on the decline. The only heartening feature is that a spurt of activity is noticeable wherever a new branch has come into being. For an assessment of the cause of lack of activity and enthusiasm, the qualitative aspect of the activities of the ASWI during this period appears to provide the clue.

The main occupation and activity of the various branches of Association uptil now appears to have been 'popularisation of science' by arranging film-shows of scientific films from the British and the U.S. Information Services, organisation of lectures on technical and non-technical subjects and science exhibitions. Some branches have

also arranged lectures, symposia and study-circles on the role and function of science in society to create a better understanding and consciousness amongst the scientific workers.

Popularisation of science is undoubtedly a very important and useful activity since it creates a better understanding and appreciation of science in the masses and brings the ASWI in contact with the non-scientific public. However, these programmes could be made more useful if they took into consideration the main objective viz., creation of understanding and appreciation among the greatest number of people. There does not appear a single instance where keeping this in view, any branch may have organised a popular science lecture in one of the Indian languages. The common man can be better approached through the medium of his mother tongue. Usefulness of these lectures can be further enhanced by a proper choice of the subjects. Weather conditions, seasons, agricultural methods, astronomical phenomena, broadcasting and such other topics related to the conditions and facts of life of the country and illustrated by known examples can be the subjects of popular lectures. 'Popular' lectures delivered in a foreign tongue with examples from foreign lands have the effect of making science look something mystical and high-sounding, un-intelligible to the common man.

Without minimising the importance of popularisation of science, it is necessary to have a balanced emphasis amongst the various programmes of the ASWI. The following remarks from the Bangalore branch secretary's report to a general body meeting of the branch are worth the attention of all conscious members (Vijnan-Karmee, June 1950, p. 19):—

"If the question were to be merely the popularisation of science or some scientists, it could have been solved from one of the many platforms that exist today. But none can deny that our movement is primarily the trade union of scientific workers aimed at the same objectives towards which all the genuine trade unions work....."

Some useful articles on science and society, scientific method and other socio-scientific subjects as also reports of lectures, symposia and study-circles on similar topics have appeared from time to time in the columns of the Vijnan-Karmee. These are naturally directed to raise the level of social consciousness of the scientific workers to enable them to bring a better understanding to the handling and operation of science in all its aspects in the country. However, the reports of branch activities provide very little proof of the practical application of such consciousness or improved understanding to the problems of science. A solitary instance appears in one of the reports of the Lucknow branch (Vijnan-Karmee, December 1950, p. 23) as follows:—

"The secretary then opened the discussion bringing to light the mal-administration, lack of apparatus, chemicals and microscopes in the various institutions. Referring to salaries, it was found that they are not uniform and the D.A. was also not uniform. Some of the institutions were irregular in payment of the salaries. The teaching as well as the minimum apparatus should also be standardised."

Since no further report from the Lucknow branch on this subject appears in the columns of Vijnan-Karmee, it is not known what action, if any was taken by the branch in the matter. It would have been interesting and instructive if the branch had gone into the details of the badly needed apparatus and chemicals etc., and brought to light the specific cases of mal-administration and made concrete suggestions to the authorities. It could usefully have made a probe

into the conditions of teaching, the courses and methods of teaching, demonstration and instruction followed in the science teaching institutions and brought to light the flaws and also offered suggestions.

Scientific workers in the teaching institutions cannot be unaware of the deplorable state of science teaching and its serious repercussion on the level of scientific research and advancement of the country as a whole. In fact, the entire fabric of scientific and industrial research, its 'Science level' depends on the quality of teaching. Lack of funds for necessary chemicals, apparatus and equipment, absence of provision for demonstration, experimental work and research ; continued pursuit of antiquated methods of teaching from out of date text books, neglect of modern developments and knowledge by the science teachers ; growing number of cheap, ill-compiled and badly edited books by authors of poor knowledge and experience ; examination guides, digests and short-cuts to success brought out with a view to commercial exploitation are cutting at the root of healthy and progressive science education. Meagre salaries paid to the teachers and lecturers coupled with long hours of teaching work alloted are working to the detriment of science teaching itself. It may appear surprising but still it is true that no branch has undertaken to study the conditions of science teaching in any of the institutions and suggested any improvements.

The government of India is spending considerable sums of money in starting and equipping a number of scientific and industrial research institutes in various parts of the country. The schemes of research undertaken in these institutes and their proper integration with the scientific and industrial development are of primary importance to the country. Scientific workers in these institute and other research establishments owe it to the country and the people that maximum benefit accrues from their researches. Proper provision of apparatus, chemicals and equipment and other modern research facilities, library facilities etc. ; in these institutes are of primary importance. Equally important are the questions of democratic and efficient administration, organisation and direction of research ; building up of healthy and congenial research atmosphere and proper team spirit ; encouragement of individual initiative etc., with a view to foster good and useful research. Adequate salaries for the staff, housing and medical facilities, necessary safety measures and insurance against possible hazards in the course of professional work are some other factors which will affect the qualitative and quantitative output of research. The units and branches of the ASWI in these institutes should take cognizance of all these factors, examine any causes that may be adversely affecting and hindering the progress of research and make suggestions to improve the scientific and organisational set-up with a view to improving the research output.

The need is for the scientific workers to turn their attention to the living problems of science in their day to day work. Science and social consciousness may not be dealt with in the abstract. If an active attitude to the improvement of the condition of science and scientific workers is taken, the columns of Vijnan Karmee will reflect not only the superficial activity in the form of film-shows and lectures but also the real problems of science and the way the scientific workers should tackle them. Centrally coordinated and directed, such activity in course of time may change the face of science in the country and make ASWI a living force in shaping the future of scientific advancement in keeping with its objectives. Active contact with the living

problems of science may enthuse and activise the membership and be an inspiration for others to join thus building the strength, effectiveness and influence of the ASWI.

Coming to the sphere of trade union activity, there have been a few notable instances of success Retention of the Mathematical Instruments Factory, re-instatement of a research scholar in Hyderabad, retention of the staff of the Central College of Agriculture in New Delhi and the case of some industrial scientific workers of DCM are some of the instances where the efforts of the ASWI met with success. Carrying out a survey of the living conditions of industrial scientific workers in an area of greater Calcutta and of the living conditions of the research workers of the Indian Institute of Science in Bangalore also fall in this sphere of activity.

However, these are few and isolated cases and point to the lack of sufficient emphasis on trade union activity. An extensive survey of the living conditions and conditions of work in all institutions employing scientific workers more particularly in the field of industry should be undertaken in all seriousness. Salaries, terms and conditions of employment, provisions for housing and health in chemical, engineering, textile, paper and other industries will reveal an appalling state of affairs. Surveys of this type will greatly interest the industrial scientific workers and give the ASWI a realistic picture based on necessary data, on the basis of which they could approach the authorities for legislative and other measures to improve the lot of the scientific workers in industry. All the branches should give priority to the work of getting the questionnaire on living conditions of scientific workers filled in by the largest possible number of scientific workers.

One notices with some surprise that in the activities reported during all these years from different branches, there is not a single instance of fraternal co-operation, mutual support or sympathy with any other class of workers or trade-union on any matter of common interest. One of the most serious weaknesses of the scientific workers' movement in India lies in its complete isolation and aloofness from the working class movement in the country. It is not surprising that because of this, the scientific workers in the country should continue to entertain mistaken notions of their superior social position. As a consequence they have failed to draw inspiration and strength from the organised trade union movement. It would be in the interest of scientific workers if the ASWI gave attention to the possibility of extending its contact and exploring the possibilities of useful cooperation with other trade unions in any spheres of common interest.

In brief, the branches of the ASWI should undertake :—

(a) Active handling of the living problems of science affecting the progress and development of science in the teaching, research and industrial institutions.

(b) Popularisation of science through the medium of Indian languages with choice of subjects related to the Indian scene.

(c) Greater attention to the trade union aspects of its programme.

Thanks are due to a number of colleagues for suggestions and discussion.

PARLIAMENTARY NOTES

University Grants Commission

While replying to a question in the House of tho People on April 17, 1953 Maulana Abul Kalam Azad, Education Minister, indicated that an agency would be created to survey the entire recommendations of the University Commission and implement them. He further stated that unless such an agency was established it would not be possible to implement the recommendations since they related to the Centre, the Universities and the States. He referred to the conference which was to be held at Delhi to consider the proposed Universities (Regulation of Standards) Bill on April 18, 1952. The conference of State Education Ministers and Vice-Chancellors of Universities asked the Government to abondon the proposed bill as they consider that the objects underlying the bill could be best achieved by expanding the powers and functions of the proposed University Grants Commission which the Government of India have already decided to constitute.

Ordnance Workers

Sardar Surjit Singh Majithia, Deputy Minister for Defence, told the House of the People on April 17, 1953 that every attempt was being made to find alternative employment to as many of the 3562 workers found to be surplus in Ordnance Factories, Depots, and M. E. S. Establishments in India. He said that the Government have already announced their intention to appoint a committee to examine the whole set up of the Ordnance Factories, including how best the entire capacity of the factory could be utilized.

Mr. Mahavir Tyagi, Minister of Defence Organisation, replying to a similar question in the House of the People on April 19, 1953 stated that approximately 1362 personnel working in Ordnance Depots had to be discharged as the work load in the Depots had decreased. He stated that a committee has been set up to recommend to the Government if there is any possibility of taking additional work from the depots so that the surplus personnel might be absorbed. Every effort would be made to reduce the number of personnel to be retrenched in Ordnance Factorees by undertaking to the maximum possible extent the manufacture of goods required by the civilian market. The Prime Minister stated in reply to a question on May 11, 1953 that the Government was paying special attention to this problem.

Development of Industries

The House of the People passed on May 5, 1953 the Industries (Development and Regulation) Amendment Bill which among other things empowers the Government of India to take over the management of an industrial unit under certain circumstances. Mr. T. T. Krishnamachari, Minister for Commerce and Industry, in introducing the Bill in the House of the People explained the necessity for the amendments put forward by the Government and stated that the amendments were neither revolutionary nor were they intended to arm the Government with secret powers which could be used to the detriment of the industry. He said that he wanted to state catgorically that the Bill was not to be used as a method for nationalisation of industry. The amendments were intended only to keep the wheels of indurstry moving. Dr. Syama Prasad Mookerji who extended general support to the Bill wanted the Government to

give the assurance that no industrial undertaking would be allowed to shut its door, and if it does, then the Governmet would set in and take it over and run it. Mr. N. V. Gadgil, who was the chairman of the Select Committee, stated that he was of the opinion that often the industries and rich classes in this country are not taxed as much as would be justified. He said that we cannot put aside from our consideration the fact that we are working a planned economy and that any thing that is likely to disturb the discipline of the plan must be put down even with a heavy hand. It was the duty of the Government that it continually does what people demand. Mr. Gadgil stressed the need for building up a managerial or economic cadre which would be able to manage any industry which was taken over by the Government. Mr. Damodar Menon, stated that it was necessary to create the necessary psychological atmosphere which will help us to take over the private sector at proper time. Mr. D. P. Karmarkar, Minister for Commerce, in the debate on the bill in the Council of States on May 11, 1953 agreed on the need for setting up an industrial and commercial service in order that the main objectives of the bill might be carried on in an efficient manner. He stated that the definite policy of the Government. on the question of nationalisation was contained in the Industrial Policy Statement of April 1948, and that there has been no change from it. Regarding foreign interests in the country Mr. Karmarkar stated that Government had come to the conclusion that it would not be desirable and in the best interest of the country to eliminate all foreign interests at a time when the country's resources were limited. Operation of foreign interests, however, was subject to certain conditions such as retention of substantial management in Indian hands.

Nationalisation of Air Transport

While assurances were given in the Parliament that the Government did not intended to nationalise industry when the Development of Industries Amendment Bill was before the House, Mr. Jagjivan Ram, the Communications Minister, introduced the Air Corporations Bill in the House of the People on April 20, 1953 seeking to nationalise Air Transport. He stated that the Government had given careful thought to the question of Air Transport in this country and taking all factors into account the Government had come to the conclusion that the new unit of operation should be owned by the State, more so when the State had to find the money for the replacement of aircrafts and also for the future development of the country. The Bill was referred to a Select Committee and when the Bill as reported by the Committee was considered by the House Mr. Jagjivan Ram made the statement that he was anxious that the staff as far as possible, should not be thrown out of job and that they should be entirely absorbed in the Corporation itself by expanding the activities and increasing its services. As far as the technical staff was concerned, he gave personal assurance that all of them would be absorbed in the Corporation.

Estates Duty Bill

Mr. C. D. Deshmukh, the Finance Minister moved for consideration the Estates Duty Bill as reported by the Select Committee in the House of the People on May 13, 1953. Pandit Thakur Das Bhargava, in supporting the Bill said that it would help in the realisation of the goal of Welfare State in the country. When the Government was wedded to the idea of a Welfare State its coffers must be full to enable it to give the advantages of such a State to the people. There was every day a demand for more schools and hospitals and better living

conditions. All these things could be done when the Government had the money. The money could only be taken from those who had enough of it, to be spent for the benefit of those who did not have it. Mr. V. G. Deshpande stated that he did not find any sign of battle between the Government and the propertied classes though the Finance Minister while introducing the Bill had stated that the Government was bringing it forward to check concentration of wealth in a few hands and that Mr. N. V. Gadgil had declared that the Bill was a frontal attack on property. Further discussion on the Bill will be taken up after the Parliament re-assembles in August, 1953.

THE ART OF NEGOTIATING*

BEN SMITH

General Secretary, Association of Scientific Workers, U. K.

The principal trade union purpose of the Association is to negotiate satisfactory salaries and other conditions of service for members, and to obtain such improvements in negotiated agreements as circumstances from time to time make necessary and desirable. Wherever possible we seek to achieve this aim through discussion at national level with representatives of employers' associations (Engineering and Allied Employer's National Federation) with Managements of national undertakings or institutions (Imperial Chemical Industries Ltd., Cable and Wireless Ltd., National Coal Board, Cooperative Wholesale Society Ltd., Medical Research Council etc.), or with representatives of employing authorities (National Health Service, Whitley Councils, Joint Industrial Councils etc.). Where, however, national negotiations of this kind are not possible, we are obliged to meet and negotiate separately with each individual firm at which our members are employed and require us to represent them.

For the most part negotiations covering general conditions of employment are conducted by full time officials of the Association who are engaged precisely because of their experience or special aptitude for such work. Nevertheless, the progress of a trade union does not depend solely upon the success of its full time negotiations and there is a great deal of valuable work which can be done for the A.Sc.W. by active members who serve as Laboratory or Gronp Representatives at local establishments. To illustrate this let me give two examples, one from the National Health Service, the other from the engineering industry.

Group Reps' Successes

During 1951 the Association concluded a number of agreements in the Health Service and when they were published it was the responsibility of the individual hospital authorities to apply them to the staff concerned. In quite a number of cases this was not done, and in others the hospital officers applied them in such a manner that Medical Technicians, Physicists, Biochemists and other scientific staff did not receive the benefits properly due to them

*Reproduced from Scientific Worker, journal of the British A. Sc. W. January, 1953.

under the agreements. Thus quite a number of members (and non-members) had a legitimate grievance which could be removed by local representations ; whilst many claims were dealt with by Regional Organisers, a far greater numbers were taken up and satisfactorily settled by active Laboratory Representatives.

In the case of the arbitration award which laid down a minimum salary scale for unqualified laboratory staff (21-25 years of age) in the engineering industry, we found that many firms were not applying the award to their junior technical staffs but the majority of these defaulting employers were persuaded to fulfil their obligations as a result of the representations made by keen A.Sc.W. Group Representatives. This is the kind of police work which ensures that hard-won agreements and standards are not broken nor undermined by a careless, obstinate or anti-union Management. There is, of course, a host of other matters which may properly and usefully be the subject of negotiations between our local representatives and their employers. Arrangements in respect of holidays, overtime, hours of work, payment during sick leave, ventilation and safety measures, disciplinary action, canteen or cloak-room facilities ; all these, and many other questions, some seemingly trivial yet quite important in a particular establishment, may urgently require discussion and settlement at local level.

No Royal Road

I am aware that in some firms it is necessary for the protection of members, that a full-time official of the Association should make any representations necessary, but in most enterprises the status and capacity of local officers to represent the Association is now recognised and appreciated. It is my hope that what is written here may be of some value to those who have the opportunity and desire to represent their fellow-members in local discussions and negotiations.

Stressing as it does the value and importance of "on the job" negotiations, the Association has attempted to give some guidance to those who are expected to undertake such work. In some areas special talks and discussion groups have been organised at week-end schools in furtherance of that idea. The A.Sc.W. handbook, published in 1945, also attempted to deal with some of the practical problems, which face Group Representatives when they have to approach Managements, but it is not possible to provide a book of rules or set of instructions which can be rigidly followed.

To negotiate is to confer with others with a view to securing a desired object. The object may be a general increase in salaries for all members in the firm or institution, the granting of educational facilities to junior staff, or the re-instatement of an employee who has been dismissed for reason which appear quite inadequate. Tho nature of the object is, for the none, unimportant; a negotiator is one who is seeking to obtain something for himself or for others, which he thinks should be granted because it is reasonable.

Knowing what you Want

The first elementary condition for success in the undertaking is that the negotiator should know precisely what he wants to obtain. This, it may be thought, is too obvious to require mention but my experience of people and negotiations suggests that many a claim is formulaied and presented without its sponsors understanding precisely what it means and what would be the result if it were conceded. People are far too often vague and woolly about what they want, and even scientists are not altogether unambiguous on matters

outside their special fields. The negotiator, however, must, if he hopes to succeed, be as clear as possible on the nature of this object and the result of its achievement.

If a claim for a new salary structure is being made the negotiator must be able to see clearly, in advance of any discussions with the employer, how the proposals can be appropriately operated and how any anomalies or resultant difficulties can be avoided by special provisions which would not themselves give rise to further problems. No one can foresee the full effect of the introduction of new conditions, but forethought is necessary, if a claim of the kind mentioned is to stand the test of critical examination and argument from another, by no means sympathetic party.

Being clear as to the nature of the particular claim to be put to the employer, and appreciating the probable effect if it is conceded, the negotiator should be able to satisfy himself that it is both practicable and reasonable. It is not good enough for the negotiator to assume that because he and his colleagues regard to particular claim as "reasonable" it must necessarily appear so to the employer or that it would appear so to an independent party such as an arbitration tribunal.

The "reasonable" point of view of the employer must also be taken into account when formulating a claim if one desires to reach agreement or later to obtain a favourable decision at arbitration. Here I must refer to the popular idea that in making a demand or preparing a claim the right thing to do is ask for doule the amount you really expect to get because in the course of negotiations employers naturally offer 50 per cent of what is required as the first move in the process of bargaining.

A variation of this idea is that you ask for much more than you expect to get in the course of negotiations because the nature of the claim will rouse popular support from members whose support is of great value in exerting pressure on employers. Every experienced negotiator who has achieved success in his work, whatever his political opinions or his field of work, regards both these ideas as rubbish and very dangerously rubbish which misleads members and discredits trade unionism.

Prepare your claim

The truth is that the negotiator is at his best and succeeds most when he is struggling for something which he knows is fully justified and which has the support of intelligent and fairminded people. Remember, then, that the preparation of a claim is a matter of great importance.

With a claim that has been carefully thought out, the negotiator has little difficulty in setting out all the arguments in support of it. Whilst recognising that there are some employers who are capable of dismissing the soundest of claims with a curt refusal, I know from experience that success in negotiations depends a great deal upon the manner in which arguments are presented as well as upon the nature of the arguments. There are many pitfalls in the path of negotiators and I am far from knowing all of them or the means of avoiding them but a few of the most common errors can be mentioned.

It sometimes happens that certain facts are in dispute and neither side is absolutely sure on certain matters. Then there is a natural tendency to gamble on one's own opinion or evidence because the other party is not quite sure. The negotiator thinks he can bluff the other side into accepting his view if he presses it strongly and when once he begins to do that he finds that he has to stake even more on the bluff. An astute negotiator, employee or trade union official, will not accept any statement of significant facts unless he is satisfied with

its accuracy. Dealing with such a person the bluffer gains nothing because his opponent will insist upon getting the facts or adjourning the meeting until they can be obtained.

If all the evidence, when obtained, does not support the bluffer he is in a difficult position because he has staked so much on his incorrect assertions: if the evidence does support the bluffer, his opponent would not worry unduly because he has not committed himself to a positive assertion. Even if the bluff is not called and it achieves some purpose in the discussion, the other side will soon know the true situation and will thereafter always be suspicious of such a "negotiator".

In the course of negotiations one must emphasise all the relevant and significant points in favour of the claim. Over emphasis leads to exaggeration and misrepresentation and many a good case has been damaged by too forceful pursuit of a point which is useful, but not absolutely vital. It is always a good thing to give the other side a point which is well made, and which cannot reasonably be contested, especially when the argument is not seriously affected by a gracious admission. And this is where I should say something about the psychological factors.

Study your opponent

There are usually two main spokesmen in negotiations and they state the views of the respective sides. A negotiator should always take a great interest in the personality of his opposite number and quickly try to sense his prejudices, predilections, and emotions. He should go to the conference table not with the idea that he has come to do battle, but with the desire and intention of reaching amicable agreement. To gain acceptance of his ideas against the opposition of the other side, he should never forget that people are moved by feeling as well as by reason. Try to establish a cordial personal relationship with your opposite number, no matter how much you disagree on the merits of the case.

Sometimes you will feel that the man is not a very pleasant person and you quickly conceive a personal dislike for him. Then you must be particularly careful not to allow your subjective feelings to affect your reasoning or your natural politeness. Almost always your opponent is, like yourself, trying to do his job in the manner which he things appropriate. It does not help your case to be disparaging about his intelligence or his sincerity. On the contrary a great deal is gained if you can unflatteringly express appreciation of any constructive and thoughtful criticism which he has to offer.

Maintain your dignity

When you meet rudeness, obstinacy or stupidity, and you often will, don't be provoked into using the same technique. Dignity and assurance can be maintained only if you avoid being provoked into a slanging match. You can be firm, pertinacious and forceful with great success if you remain polite and impersonal. If in the course of the discussion it becomes clear that you are much better informed than the other person, don't make it an occasion for demonstrating that you are clever and he is a fool.

If you have more information than your opponent let is appear that you are giving it to enable both sides to see the whole picture. Naturally, you will not be ready to ingratiate yourself just to win the superficial approval of the employer, but to give due weight and respect to his views and arguments.

In the course of negotiations the employer's side may make an offer and further proposals, usually called counter-proposals, may be made from the trade union side. Sometimes the employer makes an offer which the union cannot accept, but no

counter propossals made because the original claim has been put forward as a minimum demand. Don't grab at the first offer; study it and use your negotiating skill to so improve it that you gain all you know to be reasonable and due.

Nor should you reject out of hand an unsatisfactory offer. Explain why it is unsatisfactory and why you cannot accept it. Negotiating can be very tiring and frustrating and the negotiator may find that he becomes irritated and depressed with the failure to get what he wants. Well, if you want to succeed you have got to be patient and long-suffering. Keep your feet under the negotiating table as long as there is the remotest possibility of an agreement and you will be surprised at what you are able to achieve.

I have said that there is no book of rules or set of instructions which can make simple the task of the novitiate negotiator. I would say that the essential requirements are as follows :

First, such an interest in the job that one is not discouraged by opposition from employers, by lack of understanding support from those for whom one is acting, nor by criticism from the uninformed. An abiding interest in the job springs from a conviction that what you are seeking to do is morally right and socially desirable but a lively and objective mind is also very necessary.

Be ready to learn

Some people are highly intelligent at certain things yet incapable of seeing that there is a way of looking at matters different from their own. The chess player who can bring his game to the conclusion which he desires must be able not only to work out the most brilliant combination of his own pieces in mind. To see the game, or the problem, from the opponent's point of view is to understand the strength, weaknesses and dangers of one's own moves. How easy it is to picture the discomfort and defeat of the other side if you think only of the weighty let loose across the conference table. But how different is the reality if that is all you have thought about before you get there.

Interest and intelligence will enable you to gain enormously from every experience in negotiations work. You will find that a point arises in the course of some discussion which showed that your knowledge of the common law or of the Factory Acts was not all that you would like it to be. May be your ignorance was revealed only to yourself but that will be enough to compel you at the first available opportunity to study that particular matter.

(To be continued.)

ACTIVITIES OF THE BRANCHES

Lucknow Branch.

The Annual General Body of Lucknow Branch was held on the 4th April, 1953. The following were elected as office bearers and members on the Branch Executive Committee for 1953.

President	...	Dr. B. Mukerjee
Vice-Presidents	...	Dr. R. D. Misra
		Mr. S. C. Roy.
Secretary	...	Dr. S. P. Gupta
Joint Secretary	...	Dr. A. T. Dudani
Treasurer	...	Dr. K. R. Surange
Members	...	Dr. V. S. Mangalik
		Dr. M. B. Lall
		Mr. N. V. Berry
		Mr. Manohar Lal
		Dr. (Miss) S. Mahboob
		Dr. V. B. Singh and
		Dr. Nitya Nand.

The outgoing Secretary Dr. Nitya Nand presented a report on the activities of the Branch during 1952-53, which is reproduced below :

"Before presenting the Annual Report of the Branch I would like to say a few words about the aims and objects of the Association of Scientific Workers of India. The desirability of the existence of such an Association, registered as it is under the Trade Union Act, has been questioned and so also its past achievements and future potentialities. As we all know, for the progress of our country and improvement in the standard of living, it is extremely necessary that all our natural resources should be properly exploited. For the achievement of this objective the scientific worker holds the most important position. Naturally the Association strives to concentrate its attention on the welfare of the scientific worker and in that it is necessarily a Trade Union. In addition the Association attempts to see that our natural resources and our trained personnel are utilised in a manner in which they can best serve the interests of the country. It also seeks to disseminate scientific knowledge amongst the people so that they can be conscious participants in the application of this knowledge for their benefit. In these respects, the Association has functions and responsibilities much wider than that of a conventional Trade Union.

The Association as you might already know has, since its inception, consistently campaigned for the improvement in the salaries of scientific workers, against injustice to them, and for the proper framing and implementation of various scientific policies for the development of the country.

We, in our Branch, have been trying to fulfil these aims of the Association in our own small way. During the period under review, the membership of the Branch increased from 29 to 108, and I am glad to say that we have now amongst us members from other institutions like the P W.D. Research Laboratory and the Railway Testing Research Centre.

In pursuance of the programme of popularisation of science the Branch arranged the following series of lectures on Evolution :

1. 'Origin of the Universe' Part I and Part II by Mr. Jagjit Singh.
2. 'Origin of Life' by Mr. S. P. Misra.
3. 'Origin of the Indian Sub-continent' by Dr. D. N. Wadia.
4. 'Heredity and Environment' by Dr. J. J. Chinoy.
5. 'The March of Evolution' by Dr. S. K. Das.

In addition to these we had an extremely interesting and instructive talk on the

'Histopathology of Lepra Lesion' by Dr. V. R. Khanolkar of the Tata Cancer Institute, Bombay. It was encouraging to us that these lectures were attended by a large cross-section of the Lucknow public. These lectures will be published in our Journal and we also hope to get them compiled in a separate bulletin. We are grateful to all the lecturers, some of whom, at our request, came from Allahabad, Delhi, Moghulsarai and other places for this purpose. I am particularly indebted to Dr. D. N. Wadia who, in spite of his pre-occupation with important official duties, could find time for us.

A new feature of this year was the initiation of an annual commemoration lecture on the life and work of one of our scientists. The first lecture in the series on Birbal Sahni was delivered by Dr. A. K. Rao, one of his first pupils and life-long collaborator. We are thankful to him for giving us a very clear picture of the stature of Prof. Birbal Sahni as a man and as a scientist.

We were fortunate in having the Annual General Meeting of the parent body in Lucknow at the time of the Science Congress. It gave us an opportunity to come in contact with members from other sister branches. At the time of the annual meeting a symposium was held on the 'Language Problem and the Teaching of Science in India. A number of papers were read and these were followed by a lively discussion. Although it was difficult to take a decision on such an important and vital question yet we had an opportunity to study the various aspects of the problem. The proceedings of the symposium have been published in the April issue of our journal. The Lucknow Branch has further undertaken to draft a questionnaire to ascertain the views of the scientific workers on this issue in order to explore the possibilities of evolving a uniform policy so that the language problem does not delay the development of science in our country.

We also undertook to prepare a catalogue of all the scientific journals available in various scientific institutions in Lucknow. The work is almost complete and we have here a draft of the Directory which we propose to get printed for use by those interested in it. My thanks are due to Dr. Vora and Dr. Popli of the Central Drug Research Institute for their help in the compilation of this Directory.

With regard to the dispute referred to in our last General Body Meeting, about the applications of the employees of the Central Drug Research Institute not being forwarded by the authorities of the Council of Scientific and industrial Research for posts outside, I am glad to say that our President has recently received a communication from the Secretary, C.S.I.R., to the effect that except in the case of officers serving on contractual basis, the Council will have no objection in forwarding the applications provided such a step, in the opinion of the Director of the Laboratory, is not detrimental to the interests of the Council.

Although the Branch has grown in strength, much more remains to be done to make the Association a really representative organisation of the scientific workers of Lucknow. The programme of popularisation of science not only has to be maintained but has to be extended. There is considerable scope for bringing together scientific workers in different fields to discuss subjects of common interest, to understand and integrate each other's problems. Then scientific workers must study vital problems connected with the growth of science and its contribution to the improvement of society and make their opinion felt at all levels. For example, the unplanned and hasty replacement of English by Hindi in some of our Universities may lead to a

serious lowering of scientific standards. We have to devote attention to this problem and make our opinion known and felt. The service conditions of junior employees in some science institutions is far from satisfactory, and efforts will have to be made for their improvements.

We have also to make our fellow workers and the people conscious of the growing threat of a third world war. Science continues to be misused for the development of atomic, bacteriological and other weapons of mass destruction. A heavy responsibility rests on our shoulders as scientific workers of a neutral country and our Branch has to do something in this direction.

To achieve all this, a larger number of members must take part in the day to day activities of the Association.

Bangalore Branch

The Executive Committee met twice on the 14th and the 28th April. The first meeting was a joint meeting of the old and new Executive committee. The following members who were incharges of various projects during the previous year were requested to continue their work this year also.

AMIE Classes : Dr. S. Dhawan and Mr. B. V. Venkatesh.

Information Bureau : Mr. M. N. Iyengar and Mr. Y. K. Nagabhushan Rao.

Discussion on Research : Mr. T. K. Wadhwani and Mr. N.N. Narayan Rao.

On 20th April, three popular scientific films, lent by ICI, were screened, under the auspices of the Scientific Film Society.

It was also decided to bring out a monthly manuscript magazine under the general direction of Mr. N. N. Narayan Rao. The first issue has been brought out on May 1. Dr. B. S. Ramakrishna, Vice-President of the Branch, outlined the scope of the Bulletin in the following message :

"Communication is essential to all progress, and in particular to scientific advancement. Recognising this need, the Association of Scientific Workers of India has maintained the official monthly journal 'Vijnan-Karmee' which is published from Delhi. Necessarily, 'Vijnan-Karmee' devotes most of its space to matters of interest to all the branches of the Association, and cannot be expected to meet the local needs of its various branches.

"Beginning with this month, the Bangalore Branch of the Association is embarking upon a plan to bring out at the beginning of every month a manuscript news bulletin giving a brief summary of the activities and plans of the Association. In addition to this informative aspect, it is also intended to provide the members of the Association an opportunity to express themselves on matters of interest to the Association. In a larger sense, the aim of these bulletins, like that of the Association, is to contribute to the diffusion of scientific knowledge and to work for the cause of the advancement of Science and its benefits to humanity."

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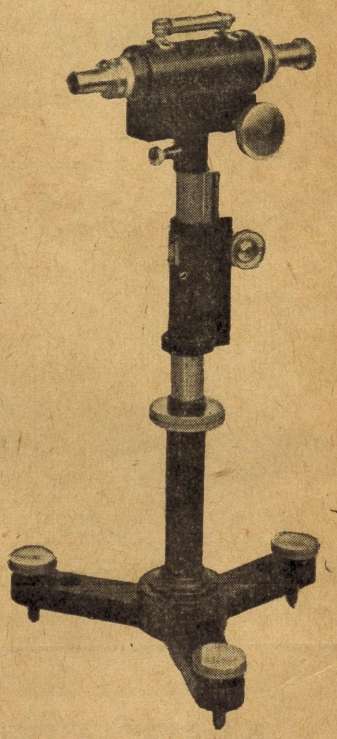
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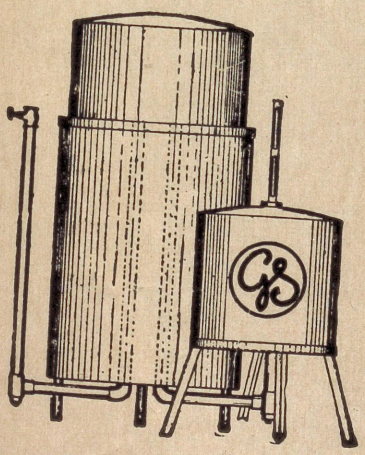
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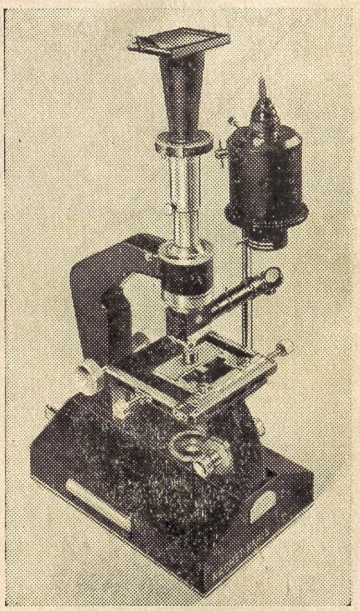
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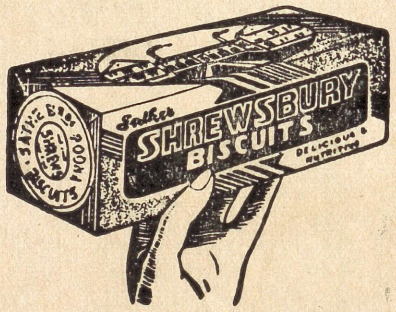
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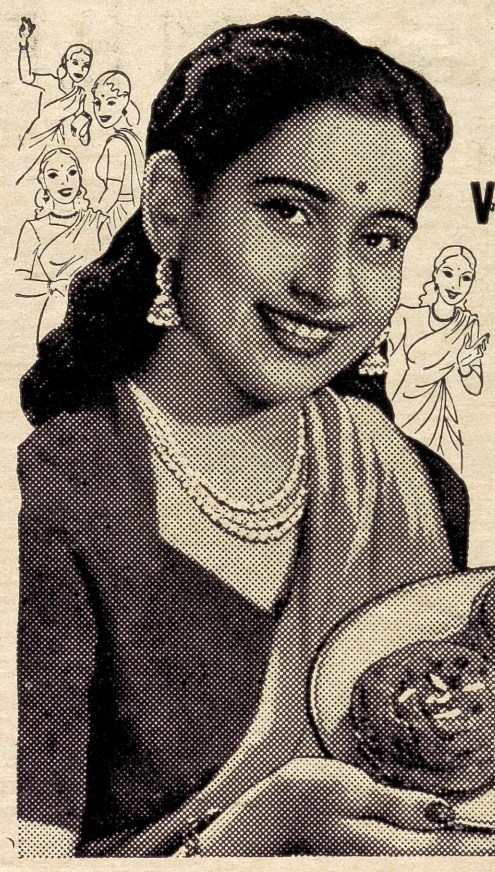
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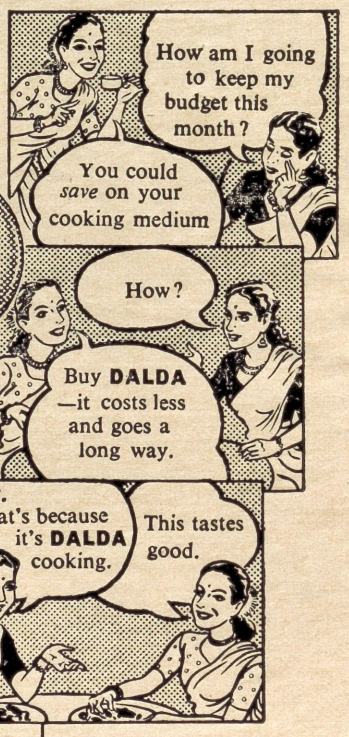
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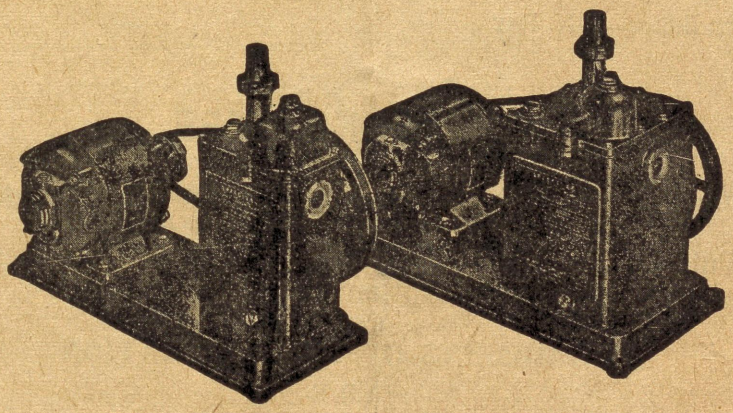
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THE OBJECTS OF THE ASSOCIATION

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.

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VOL. V] AUGUST, 1953 [No. 8

SCIENTIFIC WORKERS AND FOREIGN FIRMS

On the eve of freedom the foreign firms operating in India considered that if they had to continue to function in this country it was necessary for them to associate as much Indian talent as was possible consistant with the general framework of the industry. The foreign firms had started to adopt a policy of Indianization of their staff. We were, however, sorry to find that they very soon gave up the policy of employing Indian technicians in their factories and for some reasons 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 of Scientific Workers of India considered this question with great care and anxiety at their annual meeting held at Bangalore in January, 1951 and requested the Government to take notice of this development as it jeopardised the interests of scientific workers in industry in this country and also hindered the development of Indian scientific talent. The Association urged upon the Government to set up a suitable Government machinery which would undertake a systematic enquiry into the matter and safeguard the employment of Indian technicians in the industry in India.

The Association was aware that not only that the foreign firms were importing technical personnel but some of the Indian firms as well were doing the same for one reason or another. The Association took notice of this fact and considered that it was necessary to study the general conditions of scientific workers engaged in the various industries in this country, both foreign and Indian, and in a resolution adopted at the annual meeting held at Calcutta in January, 1952 renewed their demand for a commission requesting the Government of India to associate an equal number of members of the Association on the Commission with the representatives of the Government of India.

We were much disheartened to see that in spite of the resolutions adopted by this Association the machinery of the Government of India did not manifest any sign that the Government was alive to the problem put forth by the Association and that they were considering measures which could be taken to reduce the employment of foreign technicians in India in the Industry and increasing the employment of Indian workers. The matter came to a forefront when the Indian Companies Amendment Bill was discussed in the Parliament to grant certain exemptions to foreign oil companies who are to set up oil refineries in this country. Both Dr. Meghnad Saha in the House of the People and Maj. General Sokhey in the Council of States brought to the notice of the Government of India that the employment of foreigners in foreign industrial firms was a problem which could receive their immediate attention and asked that an Enquiry Committee should be appointed to find out the scales of salaries which were paid to foreign employees in this country. The Finance Minister promised that the observations made by the two members of the Parliament would be taken into consideration by the Ministries concerned. The Finance Minister assured the House 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. Though an Enquiry Committee was not appointed, the Government of India issued a questionnaire asking for information from all foreign concerns engaged in industry and other trades to send information regarding the number of Indians and non-Indians employed by them. The Government of India has now issued a press note giving a summary of the observations made by them after studying the replies received from the various concerns. It will be seen from the press note published in this issue elsewhere that the general survey has shown that there has been a gradual increase in the percentage of Indians employed in foreign-controlled companies since 1947. In the lowest salary group the percentage of Indians increased from 96 in 1947 to 99 in 1952, in the middle salary group from 58 to 85 and highest salary group from 7.5 to 24.3. There were in 1952, 2137 Indians as against 6661 non-Indians occupying posts drawing pay at 1000/- and above.

It is understood that the Government of India propose to take steps to provide increasing opportunities for training and employment

of Indians in foreign firms in India and that leading chambers of Commerce and foreign concerns are co-operating with the Government in this respect. The Minister for Commerce and Industry in one of the statements recently made is reported to have said that the Government of India did not wish to bring pressure in any way on the foreign concerns but the Government hoped that the foreign concerns themselves would realize the profits that would accrue from adopting a broad-minded policy of employing Indians in their concerns.

We feel that while the signs appear to be favourable for an improvement in the present conditions, it may not turn out to be as we wish it. We are anxious that if a rapid development of industry in this country is to take place, more and more of Indian scientific workers and technicians must be associated with the industry and their conditions of service should be properly protected by the Government. The Association has again stressed the need for setting a Commission to examine the information obtained in the enquiry referred to above and to recommend to the Government adequate measures to ensure the suitable employment of Indian technicians in the industry in India. The Association has also suggested that a similar enquiry should be instituted in regard to Indian fiirms working in partnership with foreign firms.

The Committee set up by the Government of India to enquire into the working of one of the gold mines in Kolar Gold Field have stressed the necessity of Indianization and have indicated that if the policy of Indianisation had been accepted, considerable economy could have been effected. The top heavy expenditure appeared to be to some extent responsible in making the working of the mine uneconomical resulting in total closure. The Committee felt that with the large number of educated and technical trained Indians now available considerable acceleration of the process of Indianisation was possible. We feel confident that the Government of India would not leave the matter as it stands today but that they will pursue the problem with vigour and set up a Commission as recommended by the Association. The problem of unemployment is facing the country and it is reported that the Planning Commission is considering revising its Five Year Plan to take care of the unemployment question.

Efficiency of Human Factor in Production

S. K. Bose, *Calcutta University.*

"The society is progressing" says history, but the events of to-day have caused grave doubts in our mind regarding the validity of the statement. Most of us have got a very bitter experience of life. Every one of us is complaining. Business magnates are complaining against the productive efficiency of workers, which according to them is going from bad to worse day by day. Workers are complaining against the management, as their wage-level is far below the poverty line. Zamindars are complaining, as the collection of rent from peasants is far from being satisfactory. Peasants are dying of starvation. To these must be added the complaints of professional men, school teachers, office clerks, petty traders etc. All are out, as it were, for lodging complaints. Social progress seems to have been dead-locked as a matter of consequence.

These complaints are not baseless. The starving society has a right to complain. In fact, the standard of living is running from bad to worse day by day. The average life of a man as measured in terms of space he occupies, the cloth he uses and the ration he consumes is a clear indication of where we are heading to. Not to speak of the modern conforts of life, even the question of the bare necessities of life, e.g., food, cloth, shelter, etc. remains yet to be answered. Its effect is quite obvious. The average span of life is gradually shortening. Deficiency disease is very common. In view of the low standard of nutrition, resistance against disease is gradually weakening. Famine and pestilences are of frequent occurrence. In fact, the very existence of social life is at a stake.

How to answer these questions is the problem before thinkers. Some are of the opinion that world to-day suffers from overpopulation. All our sorrows and miseries are due to this evil. Herein, they say with confidence, lies the crux of the problem. If the rate of increase of population is scientifically controlled, all these problems will be solved in no time. In the greater interest of society over-population should, therefore, be checked at any cost. They put forward the familiar argument that population increases in G. P. whereas food production or social productive capacity in general follows A. P. It is, therefore, next to impossible to feed as well as to meet the general needs of the growing population if things continue like these. All our resources are being tapped to meet the situation. Nature's limited resources will soon be exhausted, unless growth of population is scientifically controlled. Otherwise society will be left open with no other course than starve as a matter of consequence.

Some one of us may think so, but the opinion is really divided with regard to this point. The line of argument put forward by another school of thought is entirely different. They argue that overpopulation may be a problem of the future but it is not so at present. Nature's resouces have not been exhausted as yet. It will take society a very long time to reach that stage. The whole situation would then be reconsidered in the light of those future findings. It is, therefore, hardly reasonable to devote our immediate time and attention over the much vexed question of overpopulation which may assume a problematic importance say a hundred years after.

The latter school of thought views the situation altogether from a different angle. They are of the opinion that people are poor not because nature's resources are exhausted, but because they are not being tapped under efficient control. People have not enough to eat—enough to drink, simply because they cannot produce enough. In other words, if the productive capacity is increased, if they can produce more food—more cloth, certainly they can expect to live in plenty and happiness. If the man behind the plough does not put forth all his energy, food problem can never be solved. Similarly if the man behind the machine is cold and indifferent and does not work to the best of his ability, how shall we then meet the social demand for cloth, shelter, medicine etc. In their opinion nature's resources are not empty as yet, but the crying need of the hour is their efficient utilisation. If the productive efficiency of an individual is increased, the productive capacity of the society as a whole is proportionately increased. People may have enough of food—enough of cloth. They will live in plenty and scarcity will become a thing of the past. How to increase the efficiency of a man—the man behind the plough—the man behind the machine, is the question of the hour. It is in fact the crux of the problem. Human labour power is to be fully exploited to meet the social need. It is for all of us to adjust the conditions which may help to bring out the intrinsic energy of man for his respective profession and thereby avert the present social crisis.

A close analysis of the present day system of production and the drawbacks inherent in it will naturally throw some light on our future course of action with regard to this matter. India is still an agricultural country. Seventy per cent of her population or more live on agriculture. Agricultural economy is based on the private ownership of land. Next in importance is our industrial economy which sustains the rest of her population either directly or indirectly. It is also based on private enterprise. Mixed economy has been accepted in principle only in case of a few centres of production, e.g., Penicillin factory, Sindri Fertilizer factory, etc. It is needless to mention that in the field of production initiative still rests on individual. In fact, the whole of our production system is based entirely on individual enterprize. It is for the thinkers to investigate this economy—search out its inherent drawbacks, its consequent effect on the productive efficiency of an individual and finally suggest remedies to fight out this social menace once for all.

First in the present economic set-up, production is run in the interest of profit which undoubtedly ācts as an incentive to an individual, but it can hardly do any social justice. The cloth muddle, the sugar scandal are a few of the glaring instances in particular. During the last five years of war the price of sugar per seer rose from 3.5 to 7.5 annas, but the independent regime of one year and a half has increased through the process of control and decontrol the price of sugar from 7.5 to 14.75 annas per seer. It is relevant to mention in this connection how scientific advice is looked down upon by sugar manufacturers. In the opinion of the Tariff Board the excessive cost of production of sugar in the country is due to the use of out-dated machinery which they recommended should immediately be replaced. The sugar manufacturers are, however, complacent over the question of replacement, as their profits are ensured at consumers' expenses under the protection of Tariff wall. How does society expect efficiency from such a rotten system. The over-all effect is want and scarcity.

Secondly, production in the interest of profit can hardly satisfy the social need. Society, for example, may need one thing which the manufacturers may not produce unless it ensures them a good margin. To day society needs food and more food, but jute trade is more profitable than trade in food grains. As a matter of consequence more acreage is being allotted for jute cultivation than for paddy. In fact, production for profit can hardly take into account the existing social need. Consequently people are dying of starvation.

Thirdly, in any production system the expenditure incurred is distributed over a number of items e.g., raw materials, machines, building space etc. Hardly the expenditure on any one of the above items can be curtailed except that on human labour power. This is why industrial peace is being constantly threatened by conflicting class interest. Hardly any industrial dispute finds a satisfactory solution, despite the fact that industrial peace contributes perhaps more than anything else towards the efficiency of production. The is why the productive capacity of Indian labour is running from bad to worse day by day.

Fourthly, lack of sense of security—lack of sense of possession even in a limited sense etc. represents another counting factor for the efficiency of production. Unless the man behind the machine or the man behind the plough feels inspired with the ideal that what he is producing is his, the society can hardly expect him to rise to the highest standard of his technical efficiency. The famine problems of the constituent states of this republic can never be solved, if the man behind the plough is given no guarantee regarding his future. If he is involved in debt—if he does not get his quota of ration—his quota of cloth—if he is left with no alternative than to starve along with his whole family during the monsoon, how does society expect efficiency from such a man ? Why does the grow more food campain fail ? It is in fact an indication to think anew on the future course of action to be adopted to increase the efficiency of a man. Similarly the industrial worker of a pharmaceutical concern hardly feels inspired to work hard and produce more medicine to cope with the epidemic situation, if he remembers the days—the days when his son died of a deadly disease without a single drop of medicine being administered. This is why the productive efficiency is so low at present. One may ask them to produce more, but the man behind the machine is not a machine, but a living being with its vice and virtue, As a result consumers' goods are always in demand and the price level is steadily rising.

Fifthly, planned economy is scarcely possible in the present set-up when production is left entirely to individual's discretion. A simple instance of the kind may be cited for reference. India to-day suffers from dearth of scientific men. This is why the Government of India sent abroad a number of scientific workers for training at the expense of her blocked sterling balance. On return however, no suitable employment was given to many of them. This shows where the society is heading to for lack of co-ordinated and planned economy. People to-day are simply bewildered and scarcely find any opportunity to prove their efficiency.

Sixthly, unemplopment is a big problem which means frightful wastage of human labour power. Even the highly industrialised countries of the West could not uproot this evil from their soil. The consequent effect is mass poverty and starvation.

Seventhly, psychological want is a very common suffering in the present economic

set-up where the difference between the rich and the poor is so very marked. Consequently corruption becomes very rampant and efficiency is hardly possible.

The picture in the socialist set-up is radically different. Therein production is run in the interest of social need. Consequently profiteers and black-marketeers will hardly find a comfortable place there to thrive on nor there will ever be any likelihood of unbalance regarding the amount of manufactured goods or agricultural produce. In the socialist economy where everyone becomes a part and parcel of the whole organisation and employer or employee relation becomes a thing of the past, human productive power will be increased to its peak efficiency Everyone will be fired with a keen sense of possession and life becomes secure. It is there and then that production becomes a pleasure and there will be a healthy competition amongst all of us to work hard and produce more. In the socialist set-up where a citizen hardly suffers from any psychological want—where man to man relation becomes one of friendship and amity, standard of honesty, morality and sense of collective responsibility become considerably heightened. Last but not the least is the question of co-ordinated and planned economy which accounts for success in a socialist system.

It would appear from the above discussion that the society may have an easy walk over the present crisis provided it overhauls the present economic set-up and agrees to replace it by socialist economy. It is highly interesting to consider at this stage why the old economy which has so long been serving the society has now become useless and out-dated. The failure of the old economy may be due to several reasons. It may, however, be argued that the old economy was a creative force in those days in view of the healthy competition amongst manufacturers. There were innumerable production centres distributed all over the country. To-day the picture is entirely different. The size of these centres has considerably increased in course of time, but their number correspondingly decreased to an infinitely small figure. These few centres of production are again joined together and cemented into a strong organisation commanded by a few individuals. The rest of the population forming an integral part of the production machinery have no democratic say over the matter and are therefore cold and indifferrent in regard to its future well-being. Hence the old economic set up can hardly be fitted into the present structure without the consequent effect on productive efficiency.

The society is suffering at present from a deep crisis which according to some authority is due to over-population. It would, however, appear from the above discussion that the present crisis owes its origin not to over-population but to the lack of social consciousness on the part of each and every individual. Every one is not alive to his senses—his duties and responsibilities towards the society. He does not play his part—his share of contribution for an all-round development of the society. It is not that faculties are lacking in him, but that he does not get the necessary scope for development nor the inspiration for work. Unless the latent faculties are brought out and fully exploited, the society can hardly walk over the crisis. Old economy due to its inherent contradictions cannot nurse these latent faculties. It is for socialism to stop the gap. Socialism can nurse these virtues and make a man fully conscious of his duties and responsibilities towards the society so that he may play his part ably and manly. It is idle to talk of overpopulation to tide over the crisis. It is socialism and socialism alone that can increase the productive efficiency of human labour power and thereby make the world happier and brighter.

EMPLOYMENT OF INDIANS AND NON-INDIANS : CONCLUSIONS OF GOVERNMENT SURVEY*

In July last the Government of India requested all concerns engaged in industry, trade, banking, insurance, shipping, public utility undertakings or plantations, including managing agency firms, to send them information regarding the number of Indians and non-Indians employed by them. They were requested to intimate the number of Indians and foreigners employed on January 1, 1947 and at the beginning of every successive year upto January 1, 1952, in engineeering and scientific posts and managerial posts, including posts of accountants, legal advisers, etc. Concerns which employed only Indians were not required to send the information.

The analysis of returns received by Government shows that in 1,060 predominantly foreign controlled concerns, more than 75 per cent of the superior posts carrying a salary of Rs. 1,000/- and above were occupied in 1952 by non-Indians. Indians predominated in the two lower salary groups of Rs. 300-499 and Rs. 500-999, occupying 99 per cent of the posts in the former category and 85 per cent in the latter category.

There has been a gradual increase in the percentage of Indians employed in foreign controlled companies since 1947. In the lowest salary group the percentage of Indians increased from 96 in 1947 to 99 in 1952, in the middle salary group from 58 to 85 and in the highest salary group from 7.5 in 1947 to 24.3 in 1952. There were 451 Indians and 5,507 non-Indians drawing Rs. 1,000 and above in 1947 and 2,137 Indians and 6,661 non-Indians occupying similar posts in 1952.

The percentage of non-Indian to Indians employed in the salary group Rs. 1,000 and above in foreign controlled concerns in different businesses in 1952 was as follows (figures in brackets indicate the position in 1947).—Banking 86 (98) ; Insurance 72 (87); Transit and Transport 72 (95) ; Automobiles, etc, 57 (82) ; Printing, Publishing, etc. 67 (85) ; Chemicals, Drugs, etc, 68 (91) ; Leather and Rubber 57 (84) ; Metals etc. 66 (100) ; Machinery, engineering etc. 70 (92) ; Public Utility companies 52 (85) ; Managing Agencies 75 (90) ; Merchants, Agents etc. 80 (93) ; Cotton Mills and Presses 77 (98) ; Jute Mills and Presses 93 (99) ; Planting companies 93 (99) ; Coal companies 63 (80) ; Oil companies 60 (87) ; Other Minerals, Building Materials etc. 77 (98) ; Sugar and breweries 84 (97) ; all other companies 72 (87).

About 90 per cent of non-Indians employed in foreign concerns are U. K. nationals. Americans and Swiss account for another 5 per cent and the rest consist of several other nationalities, mostly Europeans. The number of non-Indians increased from 7,162 in 1947 to 7,653 in 1952. The number of U. K. nationals employed in these companies increased from 6,495 in 1947 to 6,820 in 1952.

It is estimated that under 300 foreign controlled firms have not yet furnished returns in accordance with the notification dated July 31, 1952. The defaulting firms are believed to be mostly trading and agency firms, planting companies, firms dealing in machinery, engineering etc., insurance companies and miscellaneous companies.

*Press note issued by the Ministry of Commerce and Industry on March 3, 1953.

NEWS AND VIEWS

The Vanamahotsava

This year's Vanamahotsava festival has started in right earnest. The President gave a start to the programme of planting trees. This was quickly followed in other places where plantings of trees were made. Dr. P. S. Deshmukh, the Minister for Agriculture, in his broadcast from the A. I. R. on June 29, 1953 urged the people to go ahead with the tree plantation scheme in a determined and steadfast manner and pleaded for a constructive and helpful approach to the problem. He referred to the new national forest policy which envisaged afforestation of all available land. This was necessary to maintain the fertility of the land as the leaf and vegetable matter were required by the soil. He made a special appeal to encourage planting of Babul trees which were useful in different ways as they provided fodder, fuel, gum, tanning bark and timber.

The Weather on Everest

Col. Sir John Hunt, the leader of the British expedition which conquered Mount Everest in May, this year, paid a tribute to the work of the Meteorological Department in India and said that the forecasts given out by the Department for weather conditions near Mount Everest were mostly correct. The forecasts differed from the actual conditions only in the velocities of wind near the Summit. Lately there has been considerable criticism regarding the weather forcasts issued by the Meteorological Department. In these circumstances, therefore, a certificate from the leader of the expedition would no doubt greatly help in removing the doubts in the minds of the public relating to the forecasts of the Meteorological Department. No body would deny that the weather is fickle minded and it requires a patient study of its nature before one could try to prophesy its behaviour. Col. Hunt also appreciated the work of the All India Radio and said that the announcements of the weather forecasts came through most clearly.

Rosenbergs Die

It will be recalled that the Association of Scientific Workers of India considering the circumstances of the case against Dr. Julius and Mrs. Rosenberg sentenced to death in America on the charge of passing on atomic secrets to another power and the stand taken by the Association of Scientific Workers of America, passed a resolution at their last annual meeting held at Lucknow in January, 1953 appealing to the President of the United States of America to stay the order of the execution. Similar appeals were received by the President from different quarters all over the world. All these appeals and the legal manoeuvres failed to save their lives.

Nirmala College

Three years ago the Government of India in the Ministry of Agriculture decided to close down the Central College of Agriculture which they had started for training students in agriculture, as the facilities for such training then available were not adequate. The Association of Scientific Workers of India intervened and made representations to the Ministry of Agriculture who changed their original plan and decided to keep the college going. The Association tried in vain to arrange for the continuation of the Lake Medical College at Calcutta which was also started for enhancing the already existing facilities for medical education. Now the Nirmala College case has come up. According to information available this college was started by the Government

of India in the Ministry of Education in order to afford facilities for the university education of displaced persons who had come to Delhi. Later the college was handed over for management to the Delhi Jesuit Education Association. After working the college for two years this Association has taken a decision to close down the college. The reasons for such an abrupt closure are not known. It is, however, understood that the University of Delhi has interested itself in the matter and is trying to evolve a solution which would allow the continuation of the college. A special committee has been appointed to examine this case. The Association of Scientific Workers of India hope that no efforts would be spared by the University of Delhi to see that an institution started for the education of the displaced persons is kept alive and allowed to develop into a well-established college.

Health Services in the U. S. S. R.

Rajkumari Amrit Kaur, the Union Minister for Health, addressing a Press conference in New Delhi after her return from Russia gave her impression that the Soviet Health Services could be described as the "Miracle of Russia". She said that the extension of the Health Services in Russia during the last 35 years was well-spread as at present, there was not a single village in the remotest area of that country that did not have health services. Considering that Russia had to start almost from a scratch, the progress made by the Soviet Union had been an "Absolute Miracle". It appears from the report available that the staff employed under the Russian Health Services are well-catered for as regards pay, residential accomodation, recreation etc. It is hoped that the visit of the Union Health Minister to Russia and her personal observations as to the extent to which Health Services could be extended even from meagre beginnings would help the Government of India in planning for the future development of the Health Services in this country.

Roorkee University

The University of Roorkee, the first university of its type catering only for the engineering side in this country, has been without a Vice-Chancellor for some time now after Mr. Hart left the Vice-Chancelloreship and it is reported that among the applicants for the post there are many eminent Indian engineers who have retired from the Government of India service and who have considerable experience in engineering subjects. The Association of Scientific Workers of India has, however, to note with regret that the University is finding it difficult to recruit professors in this country and that efforts are being made to import foreigners as professors. We do not know what the Institution of Engineers in India feels about this proposal. It is believed that there are many Indian engineers who could fill with credit the posts of Engineering Professors in the University of Roorkee. There is hardly any necessity of importing professors from a foreign land.

Revision of the Five Year Plan

The All India Congress Committee which recently met at Agra has passed a resolution on unemployment. It is stated in the resolution that the aim of the welfare State is to provide full employment to the people and that an important test of national planning must, therefore, be progressively fuller employment of the people. The A. I. C. C. considered that the present situation of unemployment required a re-examination of the Five Year Plan with a view to its expansion, more especially in such directions as would lead to an increase in the volume of employment. The State must accept an increasingly active and positive

role in regard to the development of industries. The pace of progress must be quickened. The A.I.C.C. has also brought to the forefront the problem of unemployment of the educated persons. In our Editorial in the Vijnan-Karmee, June, 1953, we stressed that the aim of the Five Year Plan is to raise the standard of living of the people in the whole country and to ensure useful work for all. The solution of the problem, therefore, lay in the industrialisation of the country for the common good of the people and not for the profit of a few. The means of production must be harnessed for meeting the daily necessities of the masses. It is good news that the Five Year Plan is to be revised and extended.

Use Swadeshi Goods

Sir M. Visvesvaraya, President of the All India Manufacturers Organisation, addressing a meeting of the Central Committee of the Organisation in Bombay stated that the country was faced with several risks. One of the gravest was the rapid growth of population and the resulting shortage of food supply. The development of industries appeared to be the only hope of materially increasing income which can be utilised for making purchases to meet food shortage and to reduce or minimise foreign imports of capital and other goods. In this connection the resolution passed by the All India Congress Committee on the use of swadeshi goods is important. In the present circumstances encouragement is required to be given to consumer goods produced in the country to help Indian industries to develop. We cannot afford to be so charitable as to solve the unemployment problem in other countries first as mentioned by Shri Shanti Prasad Jain in his address to the shareholders of Messers Rohtas Industries Limited, Dalmia-Nagar on 7th July, 1953.

SOCIETY IN THE GRIP OF SCIENCE*

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It has become an established custom during the past few decades to recite and extol the great accomplishments of science and to describe the tremendous influence which science is exerting in our daily lives. The favoured phrase, "the impact of science on society", is heard on all sides and in all lands. But what we are just beginning to realize is that there is a mutual relationship between science and society. Science is affecting society, and society, though less obviously, is exerting an influence on science. It is true, of course, that scientific research is carried out by a very small number of people, and scientists constitute but a very slender section of society. Their influence is in no proportion to their numbers, though during the past few decades both their numbers and their influence in society have been growing at an almost fantastic rate. The developments of science have contributed so tremendously to the well-being and comforts of modern society that further advances in this direction have come to be taken for granted.

*Address of the retiring President of the Pacific Division, American Association for the Advancement of Science, delivered at Oregon State College, 18 June 1952. Reproduced from Impact of Science and Society Vol. IV No. I p. 3-14.

Without completely realizing it, modern society has placed itself in the hands of science. Not without trepidation in some quarters, man is beginning to realize that his future, at least so far as it concerns his material well-being, is in the hands of scientists. As a matter of fact, science dominates modern life to a vastly greater extent than is commonly realized. And herein lies a responsibility for all scientists.

It is not necessary to recount in detail the practical accomplishments of science. Yet it is just because of the dominant position of science in our present-day society, because science is altering our lives almost daily and because the work of the scientists is being exploited for better or for worse on all sides, that the general public and the scientists are both in a considerable fog as to the mutual relationships of scientists and the man in the street. They are intimately related and definitely dependent upon each other in this modern world, needs no special emphasis. It would seem, therefore, perfectly obvious that a better mutual understanding of each other is absolutely essential for the welfare of both. Yet the complexity of modern society, the tremendous specialization and fragmentation of science and the rate of change which characterizes modern life, makes such a mutual understanding extremely difficult.

One can but have compassion for the ordinary citizen, when one considers the confusion of ideas of a scientific nature which are thrown at him each day. Most of these ideas are quite beyond anything with which he comes in contact, removed from their normal context, and all too often given emphasis beyond their merit so far as his life is concerned. Many of these ideas he never hears of again, or if he does, they are in terms which he cannot recognize. They are usually discoveries or alterations within the complex minutiae of some aspect of science, with no calm evaluation of their true significance. It is hardly possible for the layman to understand how science has almost completely taken over our material existence. To him the picture presented is that of one startling discovery after another —a series of violent convulsions which successively ring out the old and ring in the new at an ever-increasing rate. It is little wonder that the great majority of people who live within the restricted spheres of ordinary life and who have little direct concern with these matters, become confused and indeed believe that science is getting out of hand. Their plaint of science is not one of too little and too late, but rather one of too much and too soon. Most of our people when their material wants are reasonably cared for are very conservative. True, they welcome the material conveniences wrought by science, but they are also aware of the disarrangements which accompany these innovations, or which, indeed, are occasioned by them. They like to think of themselves as progressive, but they find it difficult to make the necessary adjustments to change when they do not know what it is all about. What is too little understood is how science operates in our complex society. A masterly job has been done of selling to the public the products of applied science. But far too little has been done in enlightening the people on the role of science in the production of these products and services.

Science, so far as it affects the ordinary man, is usually presented as the result of some startling or revolutionary discovery. It is too rarely made clear that the application of science to the practical needs of man is a long and intricate evolutionary process. Too little emphasis has been placed on the fact that before science can find application or before science can be used at all, there must exist a body of basic knowledge to draw on. This knowledge is the foundation

upon which all applications, be they industrial, agricultural, medical or what not, must rest. The degree to which this knowledge is sound determines in a large measure the workability or practicability of its applications. It is the amassing of this body of knowledge, its testing, collation and ordering which is the main business of science. To the uninitiated this process is not particularly interesting, for the results are expressed in a language intelligible only to the specialist. Moreover, these generalizations are of necessity of a mutable character, since the very concepts used in interpreting observational data, such as "energy", "matter", "time", and "distance" are themselves subject to further experimental and rational analysis. Yet this gradually increasing body of knowledge constitutes the accumulated treasure of our modern world. From it primarily have arisen most of our modern comforts and fortunes, and it may well be the means of our survival.

The idea that there can be no application of science without a body of scientific knowledge to draw on, which to the professional scientist is so elementary and self evident, appears to be one of the most difficult for the general layman to grasp. In no small measure the difficulty lies in the fact that the application of science is in *doing*; it is obvious, it is expressed in material things and in tangible results; whereas much of science, although also dealing primarily with material things, gives the summation of its experience largely in the form of mental concepts, which can be understood only after considerable special training. For convenience these concepts are expressed in a language which has little relation to that of ordinary life and which consequently is foreign and often repellent to the layman. This estrangement has been accentuated by the fact that the scientist is inclined to indulge in a form of intellectual snobbery, often quite unwittingly, through the indiscriminate use of his highfaulting language with his lay colleagues. Like all snobbery this has not made for a better mutual understanding. It is definitely the responsibility of the scientist to do his part to make intelligible to the public the role of fundamental scientific research for the welfare of society if he expects support for his work from this society.

Our statesmen and politicians have been most generous in making freely available to less favoured nations the results of American research through such means as the Point Four Programme. It would be only a matter of prudence to allot a portion of this largess to the established U.S. agencies from whose stores of know-how these grants have been made. These stores of knowledge must be continuously replenished and extended. Only in this way can we maintain the leadership which is so essential to our survival. We should devote some millions of these altruistic dollars to investigations of the scientific aspects of population growth and human reproduction as they affect the overall problem of human benefits to be derived from the applications of science to economic development.

Science has been remarkably successful in solving particular problems within well-defined fields and disciplines, and applying these discoveries to practical ends. Science and industry have also been very successful in convincing the public of the value and importance of technical education. Where we have failed, especially in our general education, has been to see our problems whole—to see biology in relation to human sociology, to see engineering in relation to population problems, to see these in relation to natural resources, and so on. The natural tendency of science has been to isolate a problem from its more complex surrounding

and reduce it to its simplest form. That has made for the fragmentation of science and has had some advantages. But it has also made it difficult for the specialist to see the problem as a whole. To understand the relation of some special contribution of science to broader human problem is precisely what is most needed for an appreciation of the value of science. The understanding of scientific problems as a whole on the part of scientsts is today of the utmost importance. It is only as scientsts themselves understand these broad aspects of their work and make a special educational effort to clarify these relationships that we can hope to attain a public comprehension of the role which science is playing in our social life.

There is another aspect of science which appears to be imperfectly understood by the public, namely, that the work of the scientist is never finished. That old story about the man who builds a better mouse-trap having a path beaten to his door has a sequel which has rarely been mentioned. When a scientific discovery or invention has been brought to some practical application. the work of scientists is not finished, it has only just begun. Naively one might imagine, when it was found that petroleum can be used in place of whale oil in lamps, that certain strains of wheat are more disease-resistant than others, or that synthetic indigo can replace the natural product, that those jobs were done, and that forever after society would reap the benefits of these discoveries. Such is far from the true state of affairs so far as scientist is concerned.

New undertakings and industries created by the applications of science not only give profitable employment to increasing number of workers, produce comforts and riches, but they demand an ever-increasing number of scientists to control and improve the products and processes concerned. This is a feature of the scientific era which is not sufficiently understood by the public. For example, the discovery of penicillin as a useful drug was made through the efforts of a very small group; the testing of its practicability entailed the efforts of a larger number of scientists; the large-scale development for the general use of the drug required a very considerably increased number; and the daily production, improvement and control of the product now involves certainly thousands of highly-trained people. The important point in all this is that without the constant, daily efforts of these scientifically trained people this boon to humanity could not continue. The same principle applies to almost every development of material things and processes arising from scientific research. In agriculture, communication, transportation, health, building, means of defence, in fact wherever science has been applied, the continuance of these activities requires the unceasing efforts of the scientist. Having started in the direction, the scientist has taken over, and society has put itself into the hands of the scientist. As a consequence, many of the most ordinary services, which most of us take for granted, such as a safe water supply, sanitary care of foodstuffs, the telephone, and fuel for our cars are dependent for continuous supply and operation upon the activities of scientists. And be it again noted, this is quite aside from the development of new processes and gadgets. It is mentioned here not for any self-aggrandizement on the part of scientists, but primarily to emphasize the responsibility to society which science has assumed, and especially to stress the accountability of scientists to the society which supports and trusts them.

There is a fundamental urge in Western civilization to develop, to expand, to make

more efficient and effective man's control and use of the natural forces and resources which he is constantly discovering. It appears to be part of the evolutionary pattern of his being, of the succession of events and concepts, each growing out of that which precedes it, and not unlike organic evolution, characterized by ever greater complexity and specialization. Tempting as it is to analyse more particularly this phenomenon, we cannot attempt this now. But it is an indisputable fact, an irresistible trend, escape from which is only temporary and, in oversimplified terms, appears to be one of Western civilization's reactions to unrestricted population growth. In brief, we are faced with this phenomenon of an ever more complex material existence which in a large measure is the result of applied science.

(To be continued)

Letter to the Editor

The Association of Scientific Workers of India started functioning in January 1947. Six years have passed ; but the organisation has not gathered so much strength as it should have. The Foundation President, Shri Jawaharlal Nehru said in 1947 "I hope that scientific workers all over the country will join this Association and make it an active and vital organisation." Inspite of this encouragement from the Prime Minister, why scientific workers are still indifferent ? If we are to remove the apathy towards this organisation, we are to say in simple and clear words "what we stand for".

Scientists and technicians are the architects of the modern civilization ; but their voice in the society is trivial and insignificant. This has been proved more than once in this world of to-day. Therefore it is time that the great community of scientific workers have a stronger and a better social relation. Our strong voice should reach the society—the public and the government. We must take part to create a better and a happier world, and we have the maximum claim on this because we have given the society all the primary human needs namely food, shelter, health and enjoyment. If our voice reaches the society ; if we can make the public science conscious, our professional and social status will improve and in consequence economic status will improve as well. *Therefore in a nutshell, if we want to improve our status professional, social and economic, we must make the public conscious about science, scientific methods and the scientists and this is our main object.*

A few examples can be cited to show the ignorance of the public about science. I was showing round a large number of members of Parliament, the control room of the Broadcasting House, where all programmes and news bulletins are generated and sent to the transmitters by telephone line. Few of them asked, to my surprise, which one of them were transmitters pointing to some equipment. They had no idea about what the engineers do there and how many of them are working there day and night. I do not blame them, it is our fault that we do not inform the public. In another instance, the Transport Officer did not care to pick me up in my morning shift. When I arrived there, of course late, in public transport and asked him why he did not care to pick me up he answered that the

news reader had to be picked up first and that was very important. I only smiled and told him, "Engineers are, also, as important. News reader can read news in the studio, but it will not go on the air without engineers." Hundreds of instances can be cited from my branch. Public do not think how the radio waves are coming and who are responsible for this work—this is only taken for granted. Public is only conscious about the programme. That is why the persons responsible for presentation of programme are in the fore-front. Engineers, the architects, who give the society this enjoyment always remain in the background—unoticed and unncared for. It is better not to multiply these examples.

The scientific workers of India must join this organisation now, without any more hesitation to improve their lot. Until our powerful voice goes down to the millions, our status can never be improved. In Russia scientific workers have a very high social status and they are free from anxiety about money only because people there are extremely science-conscious. "Soviet rule", wrote Edward Herriot, "has bestowed on science all the authority of which it deprived religion".

In the past years, I feel, the programme of the Association was not quite properly set we are still behaving as, what Joliot-Curie said, 'intellectual aristocrats'. We must come down to hard facts and mix with the people. Hence our first and foremost duty will be to make public "science-conscious." I will quote few lines from "Scientists in Russia" by Eric Ashby which will be very useful and it is therefore very instructive to study how the government makes them and keeps them "science-conscious". "It can be said without fear of contradiction that nowhere in the world, not even in America, is there such a wide spread interest in science among the common people as there is in Russia. Science is kept before the people through newspapers, books, lectures, films, exhibition in parks and museums and through frequent public festivals in honour of scientists and their discoveries."

Our programme also should follow this line. Some time back the same point was referred to by our Prime Minister. He said that unless the people get a scientific outlook the progress of the country was not possible. We can help the government to a large extent by following this programme. The government is repeatedly asking the public to cooperate in implementing the Five Year Plan but the public does not realise what is meant by this cooperation. Scientific workers, who will be knowing the programme thoroughly, will be the right persons to explain things to the public in clear words. Progress of the country can be accelarated by this process only.

The following programme may be adopted for popularising science.

1. *Newspapers*: The editors of the papers be approached for reservation of at least few columns in the paper for popular scientific articles to be published every day on different subjects: the material is to be supplied by us. The life sketch of different scientists, specially Indian and their work be published regularly.

2. *Popular scientific literature*: Some of the scientists should devote their time in writing popular scientific literature in different languages. Common language should be found for science and the people. Books of the type of "Mr. Tompkins in Wonderland" by Gramow or still simpler should be written.

3. *Scientific films*: Our aim should be to produce our own films. At the present

moment, we should suggest to the government to produce scientific films and also on what lines. These films should be shown in public places like parks, clubs, factories etc.

4. *Popular lectures and festivals on science* : We should give stress on this at the present moment. Popular lectures on science be held at all public places regularly. Lectures must be in simple words and with illustrations and slides, so that even so called uneducated people can also understand them.

If we are successful in our scientific and technical propaganda, we will achieve our end. The people will delegate more power and responsibility of planning and development of the nation on us.

I have mentioned above the long term programme of the Association. The short term policy will be to find the day to day working condition and economic condition of the scientific workers and to safeguard their interest. We can expect full cooperation for long term programme from the workers only when their interests are safeguarded and minimum human needs guaranteed. Therefore both the programmes should be pursued together vigorously to make our Association useful. I have not even a shadow of doubt that if this policy is pursued, in future our Association will get its rightful place in the society.

All India Radio,
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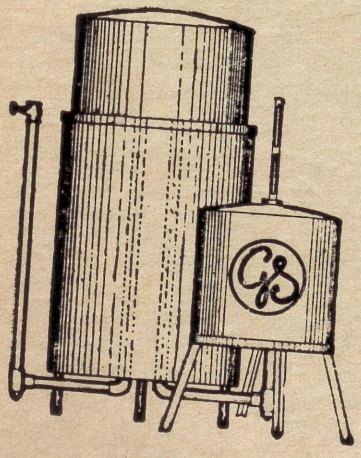
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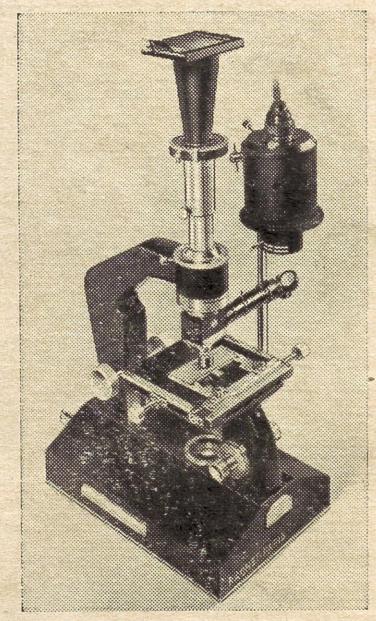
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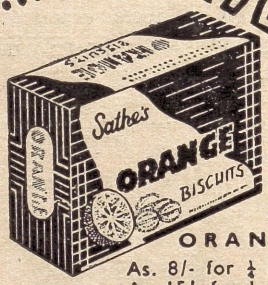
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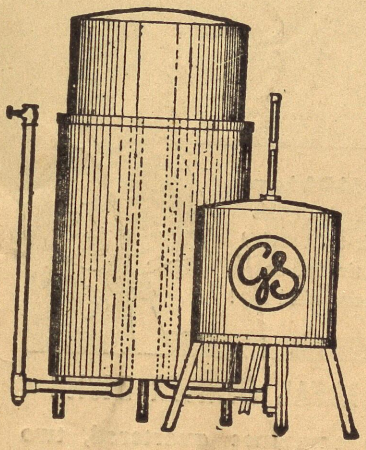
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ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

Vol. V] SEPTEMBER. 1953 [No. 9

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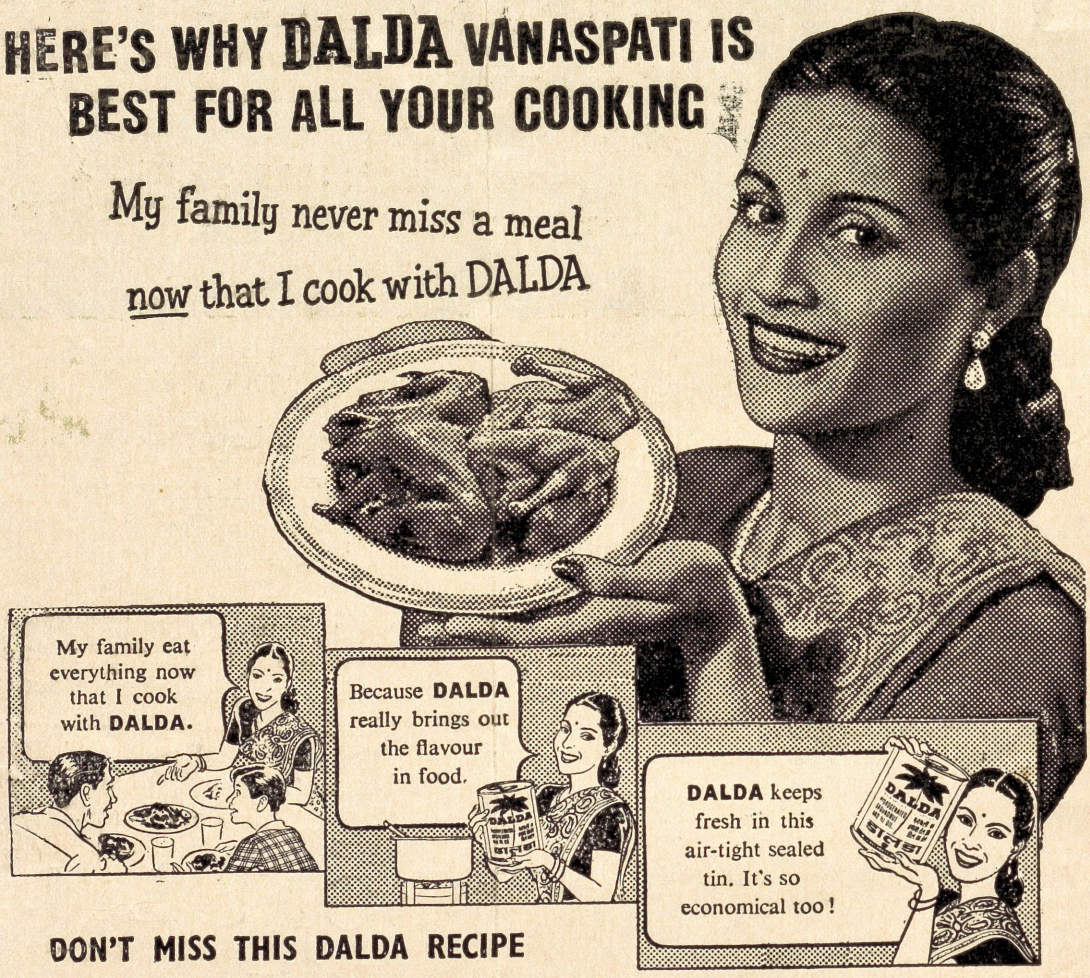
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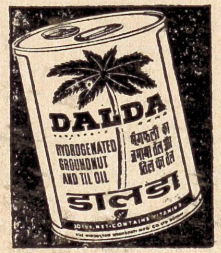


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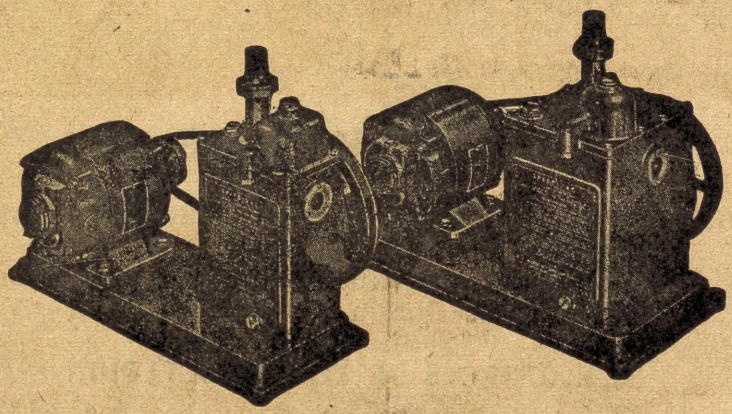
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THE OBJECTS OF THE ASSOCIATION

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.

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VIJNAN-KARMEE

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VOL. V] SEPTEMBER, 1953 [No. 9

WHY HAVE UNEMPLOYMENT ?

In our June, 1953 issue we discussed the problem of unemployment in the country and stated that the Association of Scientific Workers of India considered that only by organising and developing the economy of the country, on the basis of socialist economy, namely public ownership of means of production, could the periodic "booms" and "slumps" be avoided and science usefully applied for the steady progress of our people and it urged on the Government to initiate measures in this direction without delay so that the process of economic decline may be arrested. We stated that if the means of production were harnessed for meeting the daily necessity of the masses there was no reason why there should be any unemployment at all.

The question of unemployment in the country and the measures required to overcome the problem have been under discussion in many quarters during the last few months. The Congress Party in the Parliament discussed the unemployment situation at a meeting held at Delhi in the 2nd week of August. Mr. C. D. Deshmukh the Finance Minister in the Government of India appears to hold the view that unemployment has almost always been prevalent in India. The present situation was a reflection of the transition from the sellers' market to a buyers' market. According to him the measures which could remedy the situation were deficit financing and enlarging the size of the Five Year Plan. Mr. D. C. Sharma, considered that by stressing "unemployment" a negative approach was being adopted and he thought that a positive step could be taken by laying emphasis on increased employment. Mr. C. P. Mathen has pleaded for tapping the ideal capacity of industry in order to step up employment. Mr. N. V. Gadgil considered that new industries could be stimulated to

provide employment if the Government could exempt them from taxation for a period of five years. In the Press Conference held on July 30, 1953 Shri Jawaharlal Nehru, the Prime Minister, referred to the subject of unemployment situation in the country and said that there was no 'magic remedy' for the problem. Nine lakhs of extra persons of employable age had to be absorbed each year. They were seeking jobs of a kind which were not available. He considered it necessary to enlarge the Five Year Plan to meet the situation.

Dr. B. C. Roy, Chief Minister, West Bengal is reported to have told the members of the Congress Parliamentary Party that in his opinion the root cause of the unrest in the State which led to the serious situation in the city of Calcutta as a result of the Tramways strike must be examined. In his view the economic situation of the country was largely responsible for agitation against the Government and that the situation was further aggravated by the ever increasing unemployment. The problem of unemployment was again discussed by the Members of the Congress Party in the Parliament. It appeared that the State Governments had not properly realized the gravity of the unemployment problem. It was necessary for the Union Government to make the State Governments adopt the various schemes that have been prepared or would be prepared to fight unemployment.

The Working Committee of the Indian National Trade Union Congress in a resolution on unemployment has urged the Government of India to take immediate steps to relieve the problem of unemployment. They have asked the Government to give help to start and promote cottage and village industries, and to produce articles for which raw materials are available in the country. They have also asked for a ban on the import of articles which could be produced in India. Fields of production should be democratised. The Working Committee of the INTUC was of the opinion that any expansion of large scale industries would not be capable of solving the problem. Even if all industries were permitted to expand, they were not likely to employ even a fraction of the unemployed. The lack of purchasing power would result in the non-consumption of industrial products which would eventually lead to closures. However, no factory should be permitted to close down without the prior permission of the Government. Viewing with concern the rapidly decreasing opportunities for securing employment for a large number of people the Committee said

that a proper solution of the problem of unemployment or under-employment was not the giving of doles but of creation of more opportunities for productive employment.

It is reported that the situation of unemployment is no better for technically qualified persons. There is a surplus of labour in every field. Technical graduates find it difficult to get jobs. The industry is unable to offer them suitable jobs. In this connection the following extract from an editorial of the Bombay Technologist, 1952-53 is valuable.

"The problem of finding employment suited to the training of graduates in Chemical Engineering and Technology continues to cause anxiety. The position has been aggravated during last year, because the period of a rapid increase in the number of men so trained every year within the country has coincided with a recession in the Chemical Industry and the return to a Buyer's Market. In this respect, our graduates are far removed from the enviable position of their counterparts in England and America, where a majority of students not only receive maintenance grants from the State throughout their course, but in their final year of study, listen to pep talks by recruiting officers of many established Firms before leisurely choosing their careers. While Educationists and Administrators in this countries bewail the small numbers of students in the Technological faculties of their Universities, an analysis of the corresponding position in India leads to the conclusion that perhaps the pace of recent expansion in facilities for Technological training has been too rapid. (cf. Transactions of the Indian Institute of Chemical Engineers, 1950-51, 44, p. 14). The situation provides a challenge to the official and the graduate alike that must be met if we are to avoid the mass unemployment of highly trained men and its inevitable consequences".

In an address on the present unemployment problem Mr. D. R. Gadgil, the well-known economist, has attributed the present situation to the economic policy of the Government. In his opinion for any short-term or long-term solution of the problem the economic policy of the overnment will have to be changed. We consider that the problem of unemployment should not be a difficult one to solve if all of us face the problem bravely and plan our efforts in a rational way.

Science Policy Committee of the ASWI
Its Need, Scope and Functions

(The note reproduced below was submitted by Dr. S. H. Zaheer of Central Laboratories, Hyderabad for consideration by the Central Executive Committee. The CEC considered it desirable to carry on work in the different lines suggested and has invited volunteers to undertake it. Those interested may please communicate to the Head Office the subject on which they would like to work.)

The need for the ASWI to state its stand on different problems of national and international importance related to scientific workers and to science and its utilisation has long been felt. Such statements of policy from time to time will naturally give lead to the scientific workers on the day to day and long-term measures undertaken by the Central and the State Governments on matters concerning science and scientific workers. The resolutions passed at the Annual General Body indicate our policy on some of the outstanding problems and provide the necessary lead to a certain extent. But these resolutions and perhaps many other issues need a more detailed and closer examination before a clear-cut though not necessarily a rigid stand is taken by the ASWI.

Broadly the problems fall under the following categories :

1. Scientific research.
2. Education, particularly science education.
3. Science in industry.
4. Science in agriculture.
5. Scientific manpower and its utilisation.
6. Natural resources and their utilisation.
7. Strategic raw materials and their utilisation.
8. Atomic research.
9. Foreign interests in industries in India.
10. Freedom of research, civil liberties, freedom of communication etc.
11. Propagation and popularisation of science and scientific method.
12. Trade union problems.
13. Miscellaneous other problems.

Each of these items should be taken up for detailed consideration by the Science Policy Committee of ASWI. For example a study of the pattern of scientific research will involve a close examination of its planning, organisation, coordination and its direction. It will also have to be linked with some of the other items on the above list. In order to take a stand on strategic raw materials, their investigation and utilisation, it would be imperative to have the knowledge and study the terms of agreement between Government of India and foreign interests. Likewise, the problem of indiscriminate employment of foreign experts and technicians by the Government and private industry will have to be examined, separately drawing on the information collected under various heads of the above list. A study of the extent of foreign advice in the Community Projects ; terms of agreement with T.C.A. and Colombo plan ; policy regarding establishment and working of oil refineries ; geophysical and related surveys undertaken by foreign firms can be taken together with 'foreign interests in our industries'. The problems connected with education, industry and agriculture can be suitably subdivided and

studied independently at first and later corelated. A study of the working of some of the scientific organisations could also be usefully included in the list of subjects.

Objective of Science Policy Committee

1. To make proposals from time to time to increase the utilisation of science for national development.
2. Remedy the existing conditions.
3. Advise Government of India and State Governments in formulation of their policies on the above and related matters.
4. To focus attention on some of the more urgent problems.

Working

1. The Science Policy Committee to prepare an outline draft on all or some of the above topics and circulate it to the branches.
2. Branches be directed to form Science Policy Committees on similar lines.
3. Branch Science Policy Committees collect information and discuss the problems and communicate their views to the Centre for
   (a) Consideration of Science Policy Committee of Central Executive Committee.
   (b) Publication in Vijnan-Karmee.
   (c) For consideration of Parliamentary Sub-Committee.
4. If possible and expedient, groups may be formed at various centres to study specific problems in detail on behalf of the Science Policy Committee of CEC.
5. The centre to establish close liaison between Science Policy Committee and the Parliamentary Sub-Committee.
6. All the members of the Parliament who agree with our aims and objects and are members of the ASWI and its 'Parliamentary Group' should be accorded the status of spokesmen of the Association in Parliament.
7. ASWI to issue statements from time to time on urgent problems.

Questionairre on Living and Working Conditions of Scientific Workers

A questionairre on the Living and Working Conditions of Scientific Workers was issued in May 1952 issue of Vijnan-Karmee. Inspite of repeated reminders the response to it has been very poor. The Head Office has now received a questionaire on the same subject issued by the World Federation of Scientific Workers. The new questionairre is very similar to the one issued earlier. It has therefore been decided that in order to maintain uniformity with other countries, further collection of data be pursued on the new questionairre, Members/Units/Branches are therefore requested to pursue the matter urgently. The new questionairre is to be filled in duplicate.

PARLIAMENTARY NOTES

Employees' State Insurance Corporation

A stir was created in the Parliament when Mr. R. Venkatraman asked the question regarding the relation between the Ministry of Labour and the Employees' State Insurance Corporation. The stir was due to the fact that Dr. Katial, the Director of the Corporation, had gone on a 21 day fast. The fast was declared to be for self-purification but in statement issued by Dr. Katial indications were given that there was something wrong in his relations with the Ministry of Labour. Mr. V. V. Giri, in his reply to Mr. Venkatraman stated that there had been no difference of opinion between the Ministry of Labour and the Corporation. Mr. Giri said that the scheme was in force at present, in Delhi, Kanpur and a few towns in the Panjab, covering in all about eight percent of the insurable labour population of the country. A sub-committee had gone into the working of the Corporation and had made some important recommendations on the setting up of the Regional Boards for the scope of their work.

Indians in Foreign Firms

The question of Indians in foreign firms came up for discussion in the House of the People on August 6, 1953 when the Bill for giving powers to the Government to enable collection of statistics relating to trade, commerce and industry was discussed. Mr. Joachim Alva said that 160 crores of rupees went out of India in the form of profits of foreign firms operating in India. He said that let the Government give a long rope to foreign firms to hang themselves so that our youngmen, educated in India and in foreign countries would be ready to take up work in their factories whenever the day came. Every one of the factories would have to be manned with Indians without an iota of money going out of the land. Mr. A. K. Dutt, asked the Government that their task should not end with mere collection of statistics. Measures should be taken to see that foreign firms did not continue their policy of discrimination on Indian soil. Mr. D. P. Karmarkar in his reply to the debate stated that the policy of the Government had been to have foreign participation and it was helpful. When foreign firms came to India it would be for them to have as large a number of Indians as possible and that the Bill under consideration was one of the many steps that were to be taken in the question of employment of Indian national in non-national concerns.

Estate Duty Bill

The present session of Parliament has been busy with the Estate Duty Bill. In his speech in the Parliament Mr. N. V. Gadgil, said that he did not know why there were people who worried themselves about the effect of the measures, for the House of the People was the House of the Masses and not a House of Princes, Cotton Kings and Money Bags. There was a constitutional obligation for the removal of any quality. When the people were backward and down trodden why should one cry hoarse over the estate duty ? Professor H. N. Mukherjee said that he was opposed to exemption being given to charitable and private trusts. There should be no dependence on charity, he said. The dependence on charity, whetner Bhoodan Yagna or whatever its philanthropic variations, was degrading. In regard to exemption from the estate duty Prof. Mukherjee said that there was no scientific basis for the figures that had been arbitrarily worked out. He said that the estate duty should not await capital forma-

tion. It did not do so in other countries and there was no reason why it should do so in India.

Penicillin Factory

Mr. K. C. Reddy, told the House in reply to a question of Mr. Heda that the construction of the Penicillin Factory buildings was progressing satisfactorily. Fourteen key Technical Officers for the factory have been recruited. Of these, four have had training abroad in penicillin technology and were now in India, seven were under training in Europe. The remaining three were in India and were expected to go abroad on training at the end of the year. The United Nations International Childrens Emergency Fund had ordered the equipment against their commitment. It was expected that the erection of the plant would be complete by March, 1954.

NEWS AND VIEWS

The Sixth Independence Anniversary

The President, Dr. Rajendra Prasad, in a message on the day of the Anniversary of Indian Independence asked the nation to dedicate themselves to the great task of contributing their utmost to the happiness of the peoples and the general welfare of the world. It was a task which was at once a heavy responsibility as well as a privilege which freedom bequeathed. He asked for dedication to the principles that make for peace and prosperity not only of India but of the human race. In this connection he said that it was satisfactory to note that the humble efforts of India in the cause of peace had begun to show signs of success, particularly in Korea.

The President stated that important as the progress made by the country was, "we have still a great leeway to make up to banish poverty, hunger and illiteracy from India. To the achievement of that goal must bend the energies of our Government and every citizen of the soil. The Five Year Plan and the Community Project Schemes, which are being implemented and have made good progress, are at the moment, the centre of nation's hope. Let it not, however, be forgotten that in the materialisation of these plans people's co-operation is a vital factor".

Indian Air Lines

The air services in India were nationalised on 1st August, 1953. The inauguration ceremony took place at the Willingdon Aerodrome on that day. The President, in his message, paid a tribute to the private enterprise which was responsible for the development of commercial air transport in this country during the last 20 years. Besides being a quick means of communication, civil aviation played a vital role in the defence of the country and in times of natural calamities such as floods and earthquakes it was of invaluable help in establishing communications. He hoped that with the co-operatian of the highly efficient corps of technical and skilled workers the air transport in India would be developed in the best national interests.

Mr. Jawaharlal Nehru, the Prime Minister, in his inaugural speech referred to the fact that it was Mr. Tata who was responsible for starting the first commercial air service in India 21 years ago. Next in the field was the Indian National Airways. He congratulated the pioneers whose efforts were in many ways responsible for the

present day achievements of India's Air Services. Mr. Nehru stated that there was a tendency at present to judge the progress of a country by the advance it had made in aviation. The nationalisation of air services had been accomplished in a spirit of compromise and understanding and represented a step forward in the country's progress. Mr. Jagjivan Ram, the Minister for Communications, stated that all public utility services rightly and naturally belong to or should gradually be brought over to the public sector. He was sure that the functioning of the two Corporations was not only a public utility service but also a key industry in the context of national economy.

Mineral Advisory Board

The first meeting of the Mineral Advisory Board was held on 7th August, 1953. In his opening speech Dr. S. S. Bhatnagar, Secretary, Ministry of Natural Resources and Scientific Research, stated that the mineral policy of the Government aimed at insuring maximum production, conservation and utilisation and also checking abnormal drain of raw materials by way of export. Maulana Abul Kalam Azad, in his inaugural message to the Mineral Advisory Board stated that India was rich in various types of metals and minerals and also in many of the important minerals which were essential for the development of atomic energy. It would obviously be to the advantage of the country to allow the export of minerals in processed or semi-processed form. The programme of development must be based on the policy of encouragement of the utilisation of the minerals in Indian industry. The Mineral Advisory Board is to examine the various issues involved and advise the Government of India all the best ways in which the mineral resources of the country could be utilised in the national interests.

Development of Technical Education

It is understood that the Government of India have accepted the recommendations of the All India Council for Technical Education to establish a school of town and regional planning in Delhi in accordance with the scheme submitted by the Institute of Town Planners in India. The Government of India is also considering the proposal to establish a school in printing technology. They have also accepted the recommendations of the All India Council for Technical Education in the matter of development of facilities at under-graduate level for the training of supervisory personnel.

The Atmosphere in a University

Dr. G. S. Mahajani, The new Vice-Chancellor of the University of Delhi, expressed his opinion on the present-day atmosphere in the Universits while addressing a meeting of the Teachers' Association and the University Club at Delhi on July 25, 1953. Dr. Mahajani considered that the proper atmosphere in a University of "conversation and intercourse of minds" was at present non-existant and it was necessary to restore it. Dr. Mahajani was of the view that the technological and the democratic revolutions had destroyed this atmosphere at the Universities. The technological development required training to be imparted in a wide field of technical subjects to provide the State with an unbroken succession of technical men. The universal education required to be imparted in a democratic set up had endangered the intimate "intercourse of minds" which it was the function of the universities to provide. Moreover the emergence of a Welfare State required that Universities served the State in wider fields of public activities than hereto. Dr. Mahajani expressed the view that it was still possible to restore the university atmosphere if the "two languages," the language of the scientists and the language of the humanists, were made to be

understandable to each other. He gave various suggestions to accomplish this end. As regards the language for teaching of scientific subjects, the Vice-Chancellor stated that the studies must be in English in science as the language itself was of little importance in the study of science.

Electronic Brain

The Atomic Energy Commission in the United States of America has invented a new "electronic brain" which can multiply two 12—digit numbers in $\frac{1}{200}$ of a second. The machine is known as the Oracle. The Oracle worked in 17 hours a problem that would have taken 120 man years. The memory system can receive, retain and process as many as 2048 12—digit decimal numbers. The machine contains 35,000 electronic tubes, about 20,000 resisters and about 7 miles of wire. It is stated that the Oracle is the world's fastest, high-speed general purpose digital computor and its cost is about £350,000.

Society in the Grip of Science*

By

H. A. Spoehr

Carnegie Institution of Washington (continued from August 1953 issue)

With these manifestations of the activities of scientists we are, of course, all familiar, and as we are becoming so dominantly a materialistic people they are also foremost in our national thinking. Yet there is another aspect of science which is perhaps not so evident or at least does not enter so much into popular discussions, but which is nevertheless a more fundamental and lasting influence. This is the intellectual or broadly cultural influence of science. As Merz has stated in his History of European Thought in the Nineteenth Century[1]: "Behind the panorama of external events and changes which history unfolds before our view there lies the hidden world of desires and motives, of passions and energies which accompany them; behind the busy Scenes of Life lie the inner regions of Thought." Not only the vast general public but all too many scientists themselves pay little regard to the long and arduous struggle through which man has gone to attain freedom of thought. And this freedom of thought, this liberation from age-old superstitions and taboos, from authority and dictation, freedom from concepts of infallibility and inerrability in humans, is undoubtedly the greatest contribution which science has made to human progress. Such are the fruits of the arducus struggles of the founder of modern science. Paul Sears[2] in his recent book on Charles Darwin

* Address of the retiring President of the Pacific Division, American Association for the Advancement of Science, delivered at Oregon State College, 18 June, 1952. Reproduced from Impact of Science on Society Vol. IV No. 1 P. 3 14.

1. John T. Merz, A History of European Thought in the Nineteenth Century, Vol. I. W. Blackwood Sons, Edinburgh and London, 1907.
2. Paul B. Sears. Charles Darwin—The Naturalist as a Cultural Force, Charles Scribner's Sons, New York, 1950.

puts it very tersely. He states: "Darwin had really hit the centre of the whole business—the right of the individual to trust his own eyes, and form his own judgments, tell the world his beliefs, and have the matter cleared by open trial and honest evidence. This was the essence of the Darwinian revolution." This freedom of thought, this independence from authority and this sovereignty of honest evidence constitute the foundation of modern science on which all of the real achievements are based. Of these achievements the most significant and valuable fruits are the great laws of nature. To apply the term law to these is in a way a misnomer and is much misunderstood by the unscientific, for these laws have not been promulgated through authority, nor are they decrees or edicts. They are the summation of experience. And as the product of experience they are subject to modification, to extension and to alteration, in short, to evolutionary change. But such changes are effected not by decree or injunction, but on the basis of new evidence ; not necessarily by men in high places but by any in the great army of scientists who can produce honest evidence.

The foundations of science, and especially the means by which they have been attained, constitute a bill of rights for the establishment of free thought throughout the modern world and have had a cultural influence far greater than is generally realized. Because of the more obvious and material fruits of scientific endeavour, these intellectual aspects have not been sufficiently emphasized ; it is clearly the responsibility of scientists themselves to gain a better understanding of the historical and philosphical foundations on which their activities rest. Only on the basis of such an understanding can scientists impart to the public the real significane of science in our society. Much of the confusion concerning the role of science in modern society arises from the over-emphasis of the material fruits of science and disregard of the cultivation of the tree which bears these fruits.

We make adjustments to changes in our physical environment much more rapidly than we alter our habits of thought and attitudes of mind. We have accepted and welcomed the changes wrought in the meterial world through science, but in our modes of thought there remains much of the old savage. This is evidenced in many ways even in our relatively progressive American society, and may be illustrated by a few examples.

The true scientist welcomes criticism. He subjects his ideas and his work to self-criticism and usually invites and welcomes the objective criticism of his colleagues. Virtually the entire system of modern scientific publication of new information is based upon the critical review by professional colleagues. This does not mean that scientists live in a world of complete accord and altruism ; far from it. Nor does is mean that scientists are not human, that they do not have all the human frailities, that there are not tryants and autocrats among them. But scientists do not stand in awe of such authorities. They have a sufficiently objective view of their work to realize that if they are to gain the respect and confidence of their colleagues they must accept criticism and give criticism primarily on the basis of the evidence presented, and in the interest of arriving at the truth. As a nation we are peculiarly sensitive to criticism. In this respect we exhibit an immaturity which is quite out of accord with our age and place as a powerful nation in the world. If question is raised on matters of fundamental national policy all too frequently recourse is taken

to vituperation and invective, degenerating into the complete disregard of the facts or issues. The phenomenon is all too familiar to demand elaboration and is growing to alarming proportions as a national failing.

A similar difference in mental attitude to general social problems concerns the matter of conformity. There is an old quip which defines a scientist as a man who is of a different opinion. While this impression has undoubtedly been much abused, it is true that scientists do not stand in awe of authority nor do they regard the established order within their domain as absolutely inviolable. If there were no differences of opinion there would be little progress. Scientists are essentially pioneers and progressives, and progress rarely goes hand in hand with conformity. New ideas and fresh relationships of more established ideas are the main concerns of science. It is inevitable that these evidences of change and progress should occasionally jolt the established order. Certainly there is nothing new in the altering or disarranging of the established order which is uniquely characteristic of science. The founding fathers of this nation were surely not conformists nor were organizers of our great industries, which in a large measure have made the growth and survival of the nation possible. We tend to accept the beneficial consequences of all these pioneering efforts and petrify them into a static, set social structure. This rigour is the very antithesis of progress and eventually negates freedom.

We are experiencing in America today the pressure and influence of conformity as never before in our history. In almost every walk of life are the evidences of pressure to conform or to acquiesce to standard patterns or norms. In social behaviour, in dress, in food and drink, in attitudes towards friends and enemies and in outlook on life in general, we are experiencing greater standardization and less individuality. In a large measure this is due to the universal urge for material success and to the worship of the holy cow of security. Too rarely is it realized that security exacts its price. Life has always been an adventure and its greatest glories spring from its pursuit as an heroic enterprise. These potentialities of life must not be burnt on the alter of security.

If science in its broadest and most useful function to mankind is to survive, it must not conform to the popular belief that its main justification is the providing of immediate material welfare and security. These have their place in every society, and science willingly contributes to these ends. But scientists must raise their sights above immediate necessity and material social needs. They must educate their sponsors and society in general to an understanding of the function of science in discovering man's relation to his environment. This environment need no longer be regarded as a manifestation of some capricious supernatural being, but rather as the expression of universal scientific laws. Man's behaviour and control of himself in adjustment to these basic laws constitute conformity on a far sounder basis than conformity to man's whims and immediate material desires. And it is, moreover, of the very essence of science, as more sound information is collected through research, that these universal laws can be modified and amended.

It is also of the very essence of science that in order to amend, extend and modify out basic concepts of nature, science must be able to operate in an atmosphere of freedom. Now a great deal has been spoken and written, especially of late, on this question of freedom of scientific investigation and many of these expressions have led to violently conflicting views of the place of

the scientist in our social structure. That such should be the case is actually not surprising, because science is becoming so closely enmeshed in industry and so inextricably involved in political and international economy that it is frequently the dominant factor. In many of these relationships science has risen to play a prominent role with amazing rapidity. So rapid, in fact, has been the rise of science to this position that, on the one hand, administrators and political leaders have not had an opportunity to educate and adjust themselves to the principles underlying scientific thinking and, on the other hand, scientists have not been trained for the social responsibilities which are becoming part of their lot. There was a time when there was a great gap, in terms of years, between a fundamental scientific discovery and its industrial application. Heinrich Hertz was spared the modern television programmes and Henri Becqueral the atomic bomb. Application moves at a much more rapid rate today. The so-called pure scientist looks back with longing to the more leisurely days of his untroubled predecessors of the nineteenth century, but at the same time pulls every string to get the financial support afforded him by the progress of the twentieth century. Like Lot's wife his mentality is thereby turning into a pillar of salt. With typical Gallic conciseness Francois Mauriac has said: "A people cannot be both the happiest and the most powerful in the world."

Science is rapidly becoming the most powerful influence, both intellectually and materially, in the modern world, and scientists are becoming a very troubled lot. It is definitely the function and responsibility of the scientists to determine whether the direction of this power shall reside in their own hands, or whether the scientists shall become mere handmaidens to others who exploit these powers. In a large measure our present mode of life and level of civilization have been made possible through freedom of scientific thinking and action. It would, indeed, be an ironical turn of destiny if scientists surrendered this freedom and the opportunity to give man the full fruits of their labour for lack of enterprise and vision. It has been aptly said: "..... there is only one evil: to deny one's freedom in order to evade the responsibility it implies."

Now in spite of all that has been said to the effect that the scientist should have complete freedom, it must be conceded that there is no such thing as complete freedom in this modern world. There can be degrees of freedom or spheres of freedom. These are as much as we can hope for, and these are of the greatest importance. The freedom which the scientist cherishes so greatly and which is so essential to his fruitful labours is not something which comes of its own accord, as it were. Nor can this freedom be exacted or taken for granted in a society which for divers reasons is itself constantly losing much of its accustomed freedom. The scientist's freedom is something which must be intelligently murtered, and it is his responsibility to see to it that the degree of freedom and the spheres of freedom he requires are understood and maintained by society. The scientist cannot expect that he should be treated with special consideration or as an especially favoured member of society without an understanding on the part of society of what this is all about. Such special privilege, without commensurate responsibility, would, in fact, be a most unwholesome situation in a democratic society, and in the end be apt to have most unfavourable reactions in the scientist's position.

Some of the confusion existing at the present time on this subject can be cleared up by determining or defining the purposes

to which any given scientific endeavour is dedicated. It makes a great difference whether the purpose is one of applying science to definite practical ends or whether the purpose is the advancement of knowledge.

It is no dout true that under certain circumstances the line of demarcation between the two purpose may not be too sharply drawn, but as a general consideration there is a distinct difference in approach and point of view. A research which has as its expressed purpose the application of science to definite practical ends must of necessity depend for guidance on the authorities responsible for the practical objectives in hand. The administrators of industrial research have worked out these relationships with considerable success: the allowable progress of freedom and the nature of the practical projects and the human factors within the organization which such projects require.

In contrast with the attainment of definite practical ends is the scientific effort devoted to the consistent expansion of fundamental knowledge. This is a far more difficult process, because of the utterly inpredicatable turns development of new knowledge may take and the uncertainty of its scope. It is, moreover, a process of intricate co-ordination in which the results of each scientist's labours must be adjusted and attuned to the results of others. He must weigh his new evidence in the light of what is known and combine or rearrange both to the extension of broader and sounder knowledge. This process cannot be supervised by a directing authority or central direction. It is a far too delicate and intuitive process. Some new evidence and discoveries may fall into a co-ordinating principle relatively easily; others, and probably the majority, require long periods of gestation for the ideas to become associated in their proper relationships. When a scientist is wrestling with such problems a part of his mind is on the solid ground of nature and in contact with all scientists who have gone before him, and another part of his mind is groping to make contact with concepts yet to be clarified, and thus to allow light to penetrate a little father into the unknown. It is essentially a process of wrestling with his own conscience, of extracting the relevant from the extraneous, in short, of seeking the truth.

With this sphere of endeavour a man must have complete freedom. Central direction and higher authority can contribute nothing to the mental processes involved; they may indeed stultify the entire creative effort. It is this aspect of creative scientific work which it is so essential for society to appreciate. It is quite as important in science as it is in the fields of the creative arts. Directed scientists and artists do not produce science and art, they are simply the slaves of imposed ideologies.

If scientists do not insist upon this freedom essential to the highest ideals of their calling, science and all the practical benefits to man arising therefrom will inevitably suffer. If scientists do not plan for the place which they are to occupy in our society, and for the role which science is to play in this society, this planning will by default fall into the hands of those who are eager for this power but know nothing about it, and the place of scientists will be little more than that of the eunuches in the Sultan's palace. Scientists should not be satisfied to play the role of mere ghost writers.

As a matter of fact, scientists have enjoyed great freedom. It is primarily the result of the realization of the tremendous power inherent in science and because scientists have begun to throw their weight about a bit, that the question is being raised whether this freedom is always

being used judiciously. Freedom for the pursuit of science is a trust. This trust carries a responsibility for the highest principles of human thought, the search for truth. The scientist must be accountable to society which grants the privileges under this trust. Like respect and honour, this freedom cannot be exacted or obtained on demand—it must be earned. Technical competency cannot be the exclusive basis for awarding this freedom. Such competency offers no assurance of judgment or manners. Able scientists have been known to issue bad pronouncements, and all too often under the aegis of their scientific freedom and assumed immunity. These utturrences have long been the cause of many worrisome problems.

In our scientific organizations and associations we talk much about raising the status of the scientist. Everyone seems to have his own idea as to just what is meant thereby, whether it is financial, social or what. But in all of this, one aspect seems to have been too much neglected, and that is the ethical. For centuries other learned professions such as physicians, lawyers and clergymen have lived and worked under their codes of professional ethics. Such codes may not have been perfect, but they have at the very least emphasized the importance of the ethical aspect of these professions. They have served to demonstrate that mere proficiency in craftsmanship, extent of knowledge or attainment of academic degrees are in themselves not sufficient to warrant the respect and support of society. All these qualities are, needless to say, highly important, but over and above these are demanded qualities of character and ethical principles which have gone a long way in establishing confidence and esteem in the minds of the people. By contrast, scientists, have been so engrossed in getting new results, in denoting the minutiae of their subjects, in publishing tons of papers and in teaching an ever-growing number of students a constantly increasing mass of facts, that they have almost completely disregarded how their activities and lives fit into the the society which supports them and of which they are a part.

Science can never become a profession, in the true sense of the word, until it gives more serious consideration to the ethical principles and social relations involved in its activities. If ethical standards are not developed by the scientists themselves and a high level of professional honour is not maintained by them, it is inevitable that rules and oaths will be imposed upon their activities from without. And this will be done by members of society wholly unfamiliar with the kind of freedom essential to growth of science. The scientist's vision must reach beyond mere concern for the advancement of science. He should not take refuge in the subterfuge that science *per se* in amoral. Science gains its importance through its impact on society.

Every thoughtful person will realize that the ethical problems of science are exceedingly intricate and difficult, especially for those of us who have had little training and experience in dealing with the fundamental concepts concerned. It is so much easier and pleasanter to work in the laboratory than to think what it is all about. Obviously the scientist cannot be held responsible for every use that is made of his findings and discoveries. Almost every achievement of the human intellect in art, music, writing and even religion has at one time or another been prostituted for base and vulgar purposes. But this in itself is no excuse for shirking the broader responsibility, nor does such shirking satisfy a man's sense of achievement. Sooner or later every thoughtful scientist is brought face

to face with this responsibility. These ethical problems cannot be solved on the spur of the moment. Their sound elucidation demands much thought and soul searching; the answers are rarely there when most urgently desired. "The unexamined life is not worth living", said Socrates. It is entirely within the professional tradition of science that every aspect of life should be examined so that those who follow should have better understanding and richer life. Of late it has become the fashion to express concern for the survival of mankind as the result of the activities of scientists. Personally, I have little fear for its survival. But I believe we should have definite concern regarding the kind of people that do survive.

ACTIVITIES OF THE BRANCHES

Bangalore Branch

1. Discussion on Scope and Character of ASWI

Discussion is going on in the Monthly Newsletter of Bangalore Branch regarding the scope and character of ASWI. Dr. S. Dhawan has expressed the following views in the July, 1953 number.

"A variety of opinion prevails regarding the scope and character of the ASWI among our members. Broadly speaking, these views fall into two main categories. One set of people emphasize the popularization and utilisation of science and argue for stressing those aspects in the Association activities. The other shade of opinion holds that the ASWI is a trade union and that as such its chief concern is with the economic conditions of its membership. The former opinion is more characteristic of the higher salaried scientific personnel, notably those in administrative positions. The second opinion is usually held by the lower economic strata of technical and scientific workers.

"While both the characterizations have some basis in fact, neither expresses the matter in a correct perspective. A trade union of scientific workers, like other trade unions, is a mass democratic organization and it comes into being during a definite period in the history of a society and for definite reasons. One has only to think of Medieval India to see that trade unions in general and trade unions of scientific workers in particular are characteristic of an industrial and mechanized social order where those who own the means of production dominate and exploit the labour power of those who do not. Trade unions come into being to protect the interests of the working people who, although forming the major section of the population, are increasingly being exploited. At the same time, the growth of the trade union movement testifies to the development of an organised movement to change and reconstitute society so that the exploitation of man by man and the hunger and poverty that follow such exploitation is ended. Thus by their very origin and character, trade unions, while safeguarding the economic and social interests of the membership must directly concern themselves with the larger issue before society—that of change and progress of the whole of society. This unity of economic interests of scientific workers and the progress of science is clearly seen in the field of national economic

plans. Any national plan for progress hinges directly on the quantity and quality of the technical output of scientific workers and these in turn are inseparably bound up with their conditions of living and work.

"The membership of the ASWI must clearly recognise the basic aspects of their organization outlined above. Its growth into a powerful democratic organisation in the interests of the people considerably depends on our ability to distinguish between genuine alternatives and artificial divisions which reflect class attitudes within the membership. An indication of this has already been noted in the coincidence of opinion about the ASWI with socio-economic groups in the membership."

Mr. A. R. V. Murthy has expressed the following views in the August '53 number.

"In the Discussion Article of last month, the question of popularisation of science was taken up. This note tries to throw light on a few more points.

"Scientific discoveries and inventions were formerly supposed to be the creation of curious scientists. The public had taken it for granted that scientists were men of seclusion, living in an ivory tower of their own and to be worshipped from a distance in a temple of knowledge. The majority of the scientists too did not take any interest in letting out their acquired wisdom to the public except perhaps on very rare occasions and that too in the presence of royal patrons and aristocrats.

"During and after the success of the Industrial Revolution of the 18th Century, Industry consciously applied scientific power and technique to increase the production of commodities beyond any conceivable limit of the manufacturing scale for the sake of export to the newly discovered India, America and other countries. This huge production of commodities upset the balance of world economy and resulted in periodic crises and booms. One can deduce from history that whenever such a headlong crisis was averted a war broke out and took its place. As technology advanced, the sharpness of the crisis also became more clearly defined.

"The devastation caused during World War I was unimaginable and was the result of the weapons of destruction which were highly developed by the application of science and unleashed during the war. When the war came to an end, everyone was vexed with the very idea of even the propagation of science, as it was taken for granted that science was responsible for this catastrophe. The economic crisis shattered the world economy again in 1929-31 and let loose a huge army of unemployed people over the entire globe and this was followed 10 years later by another world war.

"It was during these crucial years that a large number of scientists began to reflect over the necessity of making known to the public, the achievements of science, which if properly used, could make the world fit to live in. For the first time in the history of the world, scientists as an institution realised the social functions of science and the responsibility of the scientists. Circumstances forced the beginning of the popularisation of science.

"Popularisation was carried on in two directions. One was led by such famous scientists as Jeans, Eddington, Sullivan, etc. Their approach was that of frustration and that of a defeatist tendency which attributed the evils of society to unforsee-able forces. Well-known books like "The Mysterious Universe" and "Limitations of Science" propagated this mystic outlook. In their view, the scientific method has a limit beyond which we have to go over to the plane of metaphysics. "Where Science ends, Religion begins" may be said to be

their motto. This pessimistic view cast a shadow over a very large section of intellectuals. Even today there are people who find a dilemma in science on the basis of ethics and morality. They are bewildered by such problems as that of feeding the "over-population" if the lives of the millions of diseased people all over the world were to be saved by the application of science. To such men there seems to be no bright future for humanity; to them civilisation is almost at its doom.

"The other direction in which science was brought before the public was led by progressive intelluctuals like Bernal, Blackett, Haldane, Huxley, Hogben and others. They gave a positive picture of science in their speeches and writings. They pointed out that it was not civilisation that was at its doom but the social system that had not yet adjusted itself to the new conditions and changes which had been brought out by science and technology. When once this occurs, all the evils of human society can be gradually eradicated and the real history of mankind may be said to begin. To achieve this, the active co-operation of vast sections of the population all over the world is neeessary. They must realise the power of science. They must understand that it is possible to know the world and its laws through science. Our knowledge of the laws of nature, tested by experiment and practice, is authentic knowledge having the validity of objective truth. There are no things in the world which are unknowable but only things which are not yet known and which will be disclosed and made known by the efforts of science. If we succeed, and there is enough optimistic evidence that we shall, we will be entering the gateway to a golden future."

2. Other Activities

On May 7, 1953, Dr. M. A. Pomerantz of the Bartol Research Foundation, Swarthmore, USA, addressed the Branch on 'Cosmic Rays'. The talk was very lucid and comprehensive. At the end of his talk, Dr. Pomerantz envisaged a time when cosmic rays might be harnessed for industrial purposes. Prof. C. V. Raman, F.R.S., N. L., occupied the chair and conducted the proceedings.

The Branch has also undertaken a survey of the economic position of scientific workers and University teachers in the Mysore University, first starting with the colleges situated in Bangalore City. The representatives of the Branch met and discussed the project with Dr. B. L. Manjunath, Vice-Chancellor of the Mysore University who recognised the value of such a survey and gave a letter of introduction to all University staff requesting them "to extend their fullest co-operation to the representatives of the organization".

As Mr. V. R. Subramaniam is leaving the Institute, Mr. A. R. Srinivasan has been elected in his place as Treasurer. Mr. P. T. Narasimhan has expressed his inability to serve on the Executive Committee and in his place Mr. N. N. Narayan Rao has been co-opted.

Hyderabad Branch

1. Hyderabad Branch Bulletin

The Executive Committee of the Hyderabad Branch has decided to publish a monthly Bulletin, with the following objects:

(i) To assist in disseminating the decisions of the Branch and its various Units.

(ii) To exchange information of the activities of the different units.

(iii) To circulate news of the activities of the Branch.

(iv) To provide a forum for discussion of local problems affecting the scientific workers.

The first issue appeared in August 1953,

extracts from which are reproduced below :

2. BRANCH EXECUTIVE COMMITTEE MEETING

A meeting of the Branch Executive Committee was held on the 14th July, 1953 to review the activities of the Branch. The items discussed were :—

(i) *Silver Jubilee of the Discovery of Raman Effect.*—The Committee noted the success of celebrations and the fitting tribute paid by the Branch to Dr. C. V. Raman. In a discussion that followed on the organisation of such functions, having both social and technical value it was pointed out that such occasions should also be utilised to emphasise the national perspective.

(ii) *Science Policies.*—In order to study and investigate the problems that face the scientists in Hyderabad in the field of Industry, Science Education, and Medium of Instruction and to formulate the policies of the Branch, it was decided to have three working parties. The working parties will study the present conditions and evaluate them in terms of the regional and national perspective so as to formulate Science policies. The following were elected as conveners for the working parties mentioned against their name :

(a) Dr. M. G. Krishna, Central Laboraries. (Industry).

(b) Mr. B. T. Venkata Chari, Physics Department, Osmania University (Science Education).

(c) Mr. K. B. Desphande, Botany Department, Osmania University. (Medium of Instruction).

(iii) *Science and Society Seminar.*—It was decided to hold the Seminar in October to discuss critically the problems of modern science as part of the general development of society with particular reference to India. Dr. D. S. Kothari, Professor of Physics, Delhi University, Dr. J. C. Ghosh, Director, Indian Institute of Technology, Kharagpur, Dr. S. N. Hasan, Reader in History, Aligarh University and others are expected to participate in the Seminar.

(iv) *Popularisation of Science:*—The B.E.C. discussed the various aspects of popularisation of science and decided to further emphasise and expand its activities covering film shows, general and special science exhibition, popular lectures and other such activities. In this connection it accepted the grant of O. S. Rs. 500/- by the Education Department of the Government of the Hyderabad to further these activities.

(v) *The Execution of Ethel and Julius Rosenberg :*—The Committee expressed its feeling through the following resolution :

"The Association of Scientific Workers of India, Hyderabad Branch, condemns the action of the Government of the United States of America in executing Julius and Ethel Rosenberg in peace time on uncorroberated evidence and inspite of world-wide appeals for clemency from leading scientists, scientific and public organisations."

(vi) *Enrolment* :—The B.E.C. decided to launch an enrolment campaign.

3. The bulletin has also reported the functioning of the Central Laboratories Unit.

The unit has 42 ordinary members and 7 associate members. It holds regular meetings to discuss scientific problems with particular reference to functioning of scientific workers at the Laborateries. The Unit has taken up (a) the problem of social insurance of scientific worker, (b) the question of training laboratory attendants and (c) the problem of scientific hazards and safety precautions. It organised a lecture by Mr. Rais Ahmed, Secretary Aligarh Branch, who gave a resume of the symposium held at Aligarh on "Scientific Research". The Unit recently organised a discussion on "The Need for Exchange of Personnel between Research Institutions and Industries

for short periods", which was well attended—a number members participating in the lively discussion.

Lucknow Branch

The Executive Committee of Lucknow Branch of the ASWI has adopted the following resolution :

"The Association of Scientific Workers of India, Lucknow Branch, views with grave concern the reported decision of the State Vice-Chancellor's Conference to introduce Service Books to maintain a record of the teaching and extra curricular activities of the University teachers. The Association strongly feels that this move is not conductive to the proper growth and development of scientific work and scientific research in our Universities. Scientific work requires an atmosphere of free enquiry, continuous clash of opinion and fearless criticism of opinion and data collected by scientific workers. The reported decision to maintain Service Book for teachers is likely to spread nepotism and jobbery and degrade the scientific values. The Association, in the name of the growth of science in this country, appeals to the authorities concerned not to introduce this new type of Service Book which is sure to reverse the intentions of the sponsors and retard the growth of scientific values in our country".

Izatnagar Unit

The General Body of the Izatnagar Unit of the Association of the Scientific Workers of India, met on the 19th July, 1953 to consider the serious situation arising out of the implementation of Sundaram's Report (Special Re-organisation Unit) according to which it is understood that about 34 posts of research workers at this Institute are to be abolished with immediate effect. Further out of the 19 new posts to be created according to the same report, none belongs to the research staff. The Association has approached the Government of India to reconsider their decision.

Affiliation of Association of Scientific Workers, Ordnance Establishment, Khamaria

The Association of Scientific Workers Ordnance Establishments, Khamaria, Jubbulpore have affiliated themselves with the ASWI on terms similar to those with other affiliated bodies. The terms are subject to ratification by the General Body of the Khamaria Association and Council of the ASWI.

ASWI representatives meet Shri V. V. Giri

Representatives of the Association of Scientific Workers of India met Shri V. V. Giri, Union Minister for Labour on July 15, 1953 and acquainted him of the problems which the ASWI was facing without recognition. Shri Giri was very sympathetic and agreed to give full consideration to the viewpoint put forward by the Association at the time of introduction of the Labour Bills in the Parliament. Shri Giri however, advised that recognition of a trade union organisation depended on its strength and therefore every effort should be made to build up the organisation.

NOTICE

ASSOCIATION OF SCIENTIFIC WORKERS OF INDIA

The Head Office of the Association (22, Havelock Square, New Delhi-1) has sent the following Circular Letter to the Branches/ Units in connection with the forthcoming meetings of the Council and General Body.

"The next meeting of the Council of the Association will be held at Hyderabad sometime during the first week of January, 1954 at the time of the Science Congress Session. This letter is being sent to the Branches and Units of the General Branch for information and guidance on the various points connected with the Council meeting. The Branches/Units should take the appropriate action and try to send the material in time to the General Secretary at the above address.

1. According to Rule No. 7 the Council may elect as Honorary members persons of distinction whose public acts have contributed to the advancement of science and the welfare of scientific workers. Suggestions for the election of Honorary Members, if any would be welcome.
2. According to Rule No. 45 each Branch has to elect to the Council a number of delegates in the proportion of 1 to every 25 members. According to Rule No. 46 each Branch has to submit to the Head Office the list of members of the Branch and delegates elected to the Council not less than eight weeks before each Annual Council meeting. Substitute delegates may be elected and the list submitted to the Head Office.
3. According to Rule No. 52 any motion to alter the Rules of the Association cannot be placed on the agenda unless three Branches or 15 Units submit in writing not less than three weeks before the date of the Council Meeting that they support a motion for altering the rules.
4. Any motion, according to Rule No. 49, must be submitted in writing not later than eight weeks before the date of the Council Meeting. Members of the Association wishing to move resolutions at the Annual General Meeting shall ordinarily send them to the General Secretary with the opinion of the Branch concerned at least eight weeks before the Annual General Meeting (Rule No. 71). The provisional date for the General Meeting is 5th January, 1954.
5. According to Rule No. 65 all Branches shall be invited to submit to the Head Office, eight weeks prior to the Annual Council Meeting, nominations to fill the vacancies in the Central Executive Committee. Such nominations shall reach the General Secretary not less than 6 weeks before the Council meeting. The nominations should be duly proposed and seconded with the written consent of the person proposed.

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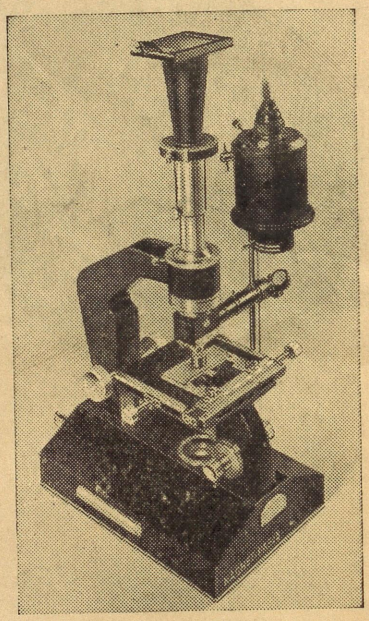
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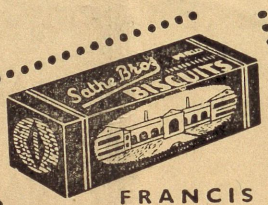
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