

NATURE

No. 4118 SATURDAY, OCTOBER 2, 1948 Vol. 162

CONTENTS

	Page
Freedom and Obligations	507
Nature and Cognition. By Dr. R. Fürth	509
A Review of Tracer Work. By Prof. F. A. Paneth, F.R.S.	509
Low Temperature Physics. By Dr. D. Shoenberg	510
American War-time Contributions to Statistical Method. By Prof. M. S. Bartlett	510
French Palaeolithic Art. By M. C. Burkitt	511
British Trade Unionism	511
Clinical Endocrinology	512
Nature Calendar. By Miss Frances Pitt	512
Genetics of Cancer. By Dr. P. C. Koller	514
The Rh Factor of Blood. By P. L. Mollison	515
Genetical Structure of Plant Populations	517
Application of Oxygen to Steel-making. By Dr. W. C. Newell	518
Obituaries:	
Prof. S. W. J. Smith, F.R.S. By Prof. M. L. Oliphant, F.R.S., and A. A. Dee	519
King Ferdinand of Bulgaria. By Phyllis Barclay-Smith	520
News and Views	521
Letters to the Editors:	
Structure and Biogenesis of Emetine.—Sir Robert Robinson, F.R.S.	524
A Synthesis of Pteridine.—Dr. W. G. M. Jones	524
Chemical Assay of Streptomycin B (Mannosido - Streptomycin).—W. B. Emery and A. D. Walker	525
Molecular Weight of Malt-Amylase.—Carl-Erik Danielsson	525
Action of Oxalyl Chloride on the Aromatic Hydrocarbons.—Husseini Ahmad Fahim	526
Selective Development of Fission Tracks in an Electron-sensitive Emulsion.—Dr. G. W. W. Stevens	526
Anomalous Magnetic Behaviour of Nickel—Iron at High Frequencies.—A. Wieberdink; Prof. R. Kronig	527
Brief Light Pulses using Kerr Cells.—Prof. W. M. Cady and A. M. Zarem	528
Liquid Surface Interferometry.—H. Barrell and R. Marriner	529
Truncated Log-Normal and Root-Normal Frequency Distributions of Insect Populations.—D. Spiller	530
Photographic Evaluation of Blackout Indices.—Dr. Robert W. Lawson	531
Variation of Ground-Levels on Coe Fen, Cambridge.—E. G. Sterland	532
Work-Hardening Under Complex Stresses.—Dr. K. H. Swainger	532
Genetics of Style-Length in <i>Oxalis</i> .—Prof. R. A. Fisher, F.R.S., and V. C. Martin	533
Microflora of the Rumen of the Sheep.—M. Ingram and C. A. McGaughey	533
British Folliculinidæ (Ciliata, Heterotricha).—Dr. S. M. Das	534
Number of Sperms Required for Fertilization.—C. R. Austin	534
Inactivation of Complement by Nitrogen Mustard.—W. M. Watkins and Prof. A. Wormald	535
Loss of White Cells in Bone Marrow Culture.—H. J. F. Cairns and L. G. Lajtha	536
Effect of Adenosine Triphosphate on Monolayers of Myosin.—Agnete Munch-Petersen	537
Paramagnetic Resonance in Copper Sulphate:	
Experimental Investigation. By D. M. S. Bagguley and Dr. J. H. E. Griffiths	538
Theory. By Prof. M. H. L. Pryce	539
Royal Observatory, Greenwich	540
Resistance to Sulphadiazine and 'Paludrine' in the Malaria Parasite of the Fowl (<i>P. gallinaceum</i>). By Dr. Ann Bishop and Elspeth W. McConnachie	541
Changing Aspects of Nutrition	543
International Commission on Large Dams: Congress in Sweden.—By Dr. Norman Davey	544

Editorial and Publishing Offices

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

Telephone Number : Whitehall 8831

Telegrams : Phisus Lesquare London

Advertisements should be addressed to

T. G. Scott & Son, Ltd., Talbot House, 9 Arundel Street, London, W.C.2

Telephone : Temple Bar 1942

The annual subscription rate is £4 10 0, payable in advance, inland or abroad

All rights reserved. Registered as a Newspaper at the General Post Office

FREEDOM AND OBLIGATIONS

IN the summary of the proceedings of the meeting of the Committee on Science and its Social Relations held in Paris during June 15-16 which has been sent to the scientific press and to scientific organisations, special emphasis is placed on a declaration on the principles of a charter for men of science. This declaration is the outcome of a discussion on the obligations and rights of scientific men in which due note was taken of the charter proposed by the World Federation of Scientific Workers and of a resolution adopted by the General Assembly of the International Council of Scientific Unions in London in July 1946. This resolution, which arose out of discussions on research on nuclear energy, affirmed the conviction of the International Council that international security and welfare would be impossible if in any country military secrecy be allowed to dominate scientific discovery or to prevent the frank discussion and open publication of scientific results. Accordingly, the General Assembly, in the name of the men of science of the nations represented, acknowledged in this resolution the duty on the part of scientific workers: (a) to maintain a spirit of frankness, honesty, integrity and co-operation and to work for international understanding; (b) to promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse; (c) to serve the community not only by their specialized work but also by assisting so far as they are able the education of the public in the purposes and achievements of science.

The declaration now issued by the Committee on Science and its Social Relations points out that the prominent position held by science in society and the rapid transformation of the world through the application of science carry with them, for scientific workers, special obligations over and above the ordinary duties of citizenship. The Committee lists among these obligations the first two recorded in the resolution from the International Council of Scientific Unions, and adds three others: to examine conscientiously the meaning and purposes of the work that he or she is performing; when in the service of others to inquire into the purpose for which the work is being done and the moral issues that may be involved; and to assist in the education of the people and government in the purposes and the achievements of science. Furthermore, to fulfil these obligations, the Committee urges that it is necessary to claim certain rights for scientific workers, and especially: (i) freedom of publication and the utmost freedom to discuss one's work with other men of science; (ii) economic security and the right to participate freely in all activities permitted to all citizens; (iii) the possibility of obtaining information about the purposes for which his or her work is being done.

Now the obligations detailed by the General Assembly of the International Council of Scientific Unions are clearly in line with the rights defined in the United Kingdom draft of an International Bill

of Human Rights, as well as with American opinion in this field, and are the counterpart of the freedom of speech and publication and information set forth in that draft, though it should be noted that however admirable the sentiments it is not easy in practice to give precise meanings to some of the terms. There may well be acute differences of opinion in interpretation and even sharp dispute. The further obligations and rights detailed in the new declaration from the Committee on Science and Social Relations, however, bristle with such difficulties and require very careful scrutiny before they can be accepted for what they purport to be and held universally valid.

In the first place, when the proposed charter substitutes an over-riding professional loyalty, something in the nature of a Hippocratic oath, for the strong national loyalties of to-day, it is as well to be quite clear as to the consequences. Something of what may arise is indicated by the circumstances in Britain which last spring forced the Government to exclude from a certain range of appointments Communists and others whose particular political loyalties were suspect of over-riding national loyalties. Though there may be a large measure of international agreement on the traditional loyalty of any profession, it is imperative, in a world where international loyalty itself has commonly so little force, that national loyalties should not be disregarded too lightly, however untoward some of their consequences may be.

The framers of this declaration obviously had in mind the increasing use of science for military ends; but they do not appear to have taken sufficient account of the position of the individual scientific worker. It cannot seriously be maintained that the professional organisation of even, say, chemists is sufficiently strong and virile to afford a chemist the support and anchorage anywhere in the world which will enable him in any circumstances to refuse to work for military ends. If, say, under a dictatorship, persecution or other means compels him to do so, while in democracies and elsewhere he refuses to do so, the practical result might be the overthrow of the democracies and probably of science with them.

Viewed from this angle and without other measures, the charter might well be of no more value than the Kellogg Pact. The work of most men of science, however, is not primarily or even secondarily connected with preparations for war. Most of them are engaged in some form or other of work in industry, and the terms in which the obligations and rights of the scientific worker are set forth by the Committee on Science and Social Relations seem to take very imperfect account of that fact. The freedom of publication and freedom to discuss his work with other men of science must in industry be subject to some limitations. In practice, industry in Britain does pursue an increasingly liberal policy towards publication of research results; but while, for example, the practice of patenting remains, there are clearly other considerations, and the responsibility for decision as to publication and public discussion must remain one for management. Indeed, the claim that the man of science should be fully in-

formed about the purposes for which his work is required makes it more essential from the point of view of industry that the management should retain the responsibility for decision as to publication. The whole trend of thought and policy is towards giving all workers more information as to the reasons for the work as the best means of securing wholehearted co-operation, and the Barlow Report on Scientific Staff and other reports have emphasized the importance of taking scientific and technical staff into the full confidence of the management. The wisdom of that practice was demonstrated repeatedly during the War in the case of what is commonly described as 'operational research'.

That, however, is reciprocal. The confidence of management in the scientific worker must be met by a readiness on the part of the scientific worker to respect that confidence, and by the understanding that there are times when it is not in the public interest to disclose information acquired in confidence. The disclosure of confidential information cannot be claimed as a right, above all in the face of a formula which almost enjoins a scientific worker so minded to pry into the whys and wherefores of what he is doing. While very few would be likely to abuse such a right, no commercial firm could be expected to tolerate the absurd position which might arise, and any charter intended for universal acceptance must have regard to the conditions of every life in which the rights and responsibilities it adumbrates will be exercised.

What sometimes appears to have escaped the minds of those responsible for drafting the present charter is that freedom and rights are contingent. Seldom, if ever, can they be regarded as absolute. That much was implicit in the United Kingdom draft of an International Bill of Human Rights, and discussions at Geneva and elsewhere have indicated not only the difficulty of giving precise definition to rights which could be legally enforceable, but also the value of a declaration as opposed to a legally binding international agreement. A declaration which, without being Utopian, represented the practice of the most advanced countries might be accepted sincerely as a standard, and may well prove to be the most satisfactory solution to the problem so far as it touches men of science.

Much searching and honest thought will have to be given to the problem if a set of formulae is to be derived which can command universal assent and respect without being too vague to be of value. The present declaration cannot be regarded as more than a contribution to the discussion, if indeed it were ever intended as more. At least it deserves to be examined and criticized constructively by those more familiar with the problems of industry and competent to assess the position of the industrial scientific worker than the members of the Committee on Science and its Social Relations itself would appear to be. The ethical and moral basis of world order and international co-operation will not be achieved without an intellectual effort at least comparable with that through which the discipline and tradition of any profession have been developed.