engagement of imagination and personality itself, emerged as the considered outcome of Miss Meek's researches.

Dr. Harper gave a broad survey of the 'flow of information' regarded as a scientific problem, with the view of establishing the significant variables in the process. He characterized our present knowledge in this field as no more than a "natural history stage". He used the term "information" not in the current but still esoteric cybernetic sense, but simply as a "composite of facts, ideas, knowledge and techniques". Dr. Harper divided the field up into (1) media and methods; (2) material or message; and (3) focal points. Under (1) he listed as four major points of inquiry: use of language; size and type of groups; use of visual aids; and the scope for interaction and 'feed-back'. The B.B.C. concept of the 'target audience' is relevant here, under the heading of size and type of groups. He indicated the need for much greater specificity of aim if communication is to be effective. This applies equally to (2), that is, content of message. Under (3) he developed an interesting series of parallels between human and electronic communication while stressing the radical differences in the nature of the processes themselves; and he reminded would-be communicators of the axiom of "training within industry" that "if the worker has not learned, the teacher has not taught". He also emphasized Miss Meek's theme of the over-riding importance of attitudes and human motivation.

Prof. Meredith, in his concluding contribution to the symposium, stressed the differences rather than the parallels between human communication and communication-engineering. Basically our problem concerns a relation between the man in the laboratory and the man in the factory, differing in outlook, training and mode of life, yet mutually dependent. The scientific document is a slender and inadequate link between them. The man of science, if intent on his research, cannot usually make himself expert in communication techniques. The industrial expert has reasons, some good, some bad, for resisting knowledge which may change his practice. The advance of science must be matched by a corresponding advance in methods of communication. Improved communication demands not less but more stress on human factors. Effective communication of the basic knowledge factors—materials, properties, processes, laws, concepts, historical bases and operational prescriptions—demands at its fullest a 'six-pronged invasion force' of verbal, diagrammatic, pictorial, filmic, material and human carriers, under the command of an appropriately trained 'communications officer'.

G. P. MEREDITH

HEALTH OF SCHOOL CHILDREN

PARENTS and others interested in the welfare of children will find, in the report of the Chief Medical Officer of the Ministry of Education for the years 1952 and 1953 (H.M.S.O., 1954; 5*s*. net), much that will interest and please them. Everywhere, the report assures us, the health of the children is satisfactory. In 1953 only 2·2 per cent of the children were considered by school doctors to be in poor general condition. Thanks to immunization, diphtheria is now a rare disease, and let us hope that everyone concerned, parents included, will co-operate to maintain this protection from a dreadful disease. Rickets scarcely exists, and if tetanus (lockjaw) could be also banished by similar measures, so much the better. Among children aged 5–14 suffering acute infectious diseases, about 90 per cent suffered from measles, whooping cough and scarlet fever. There has been, in recent years, a remarkable decrease in the number of deaths among children aged 5–14 from tuberculosis. In 1938 the number of children of this age-group who died of this disease was 973, whereas in 1952 it was 168, and in 1953, 107. In general, the incidence of acute rheumatism has also fallen sharply during the past ten years; but there have been exceptions in certain areas, and several principal school medical officers have reported an increase, in 1952 and 1953, of the number of children with rheumatic heart disease. There were still more than a quarter of a million children with nits and lice; but the number of verminous children was, nevertheless, the smallest known in the history of the school medical service. Among the other subjects discussed by the report are food poisoning in schools, middle-ear disease and that puzzling bugbear of the parent, poliomyelitis.

Less reassuring is the section dealing with dental caries, which has increased, and there is strong evidence that sweet and sticky articles of diet are important causes of decay of teeth. The consumption of sugar per head of the population rose in 1946 (immediately after the War) and has continued at a higher level. It is suggested that reduction of sweet and sticky foods would reduce dental caries considerably.

The report strongly urges the retention, wherever this is possible, of handicapped children in the ordinary schools. Most of them have to go to work when they leave school and their school life should not be too sheltered. It is expected that early auditory training and the teaching of lip-reading will enable more children with defective hearing to attend ordinary schools in the future. Children with defective sight are already attending these schools more and more, and those with defective speech can be trained in them. Very severely handicapped children should not, however, be educated at the expense of other children, nor should teachers be asked to bear responsibilities in this respect that may be too exacting. For handicapped children, 222 new special schools have been opened since 1945, and these accommodate 14,165 handicapped children. Among them are 30 hospital special schools, in which about 8,000 children are being taught. An innovation in 1953 was the establishment, by the Diabetic Association, of three camps for diabetic children, in which these children can have a holiday with special care and diet. The British Epilepsy Association made a similar arrangement for epileptic children. An interesting chapter of the report discusses the baffling problem of asthma, on which much research is being done. A limited number of asthmatic children have been sent abroad for treatment; but medical opinion is divided about the wisdom of this procedure.

The introduction of the National Health Service has not had any serious effect on the School Health Service; but its provision of 'free' service by a general practitioner may have helped to reduce the number of children who attend clinics for minor ailments. School doctors in general have reported better co-operation between the general practitioners and themselves than ever before.

It is now nearly fifty years since the School Medical Service in Britain began, and it has, during that period, expanded without interruption. It has, in conjunction with improvements in the standard of living and in family and general care, very greatly improved the health and cleanliness of the children, so that it is now possible for the Service to give more attention to the needs of individual children. Everyone who is responsible for children in any way, or is otherwise interested in their welfare, will be grateful to every member of this Service, whose patience and devotion and efficiency are giving to so many a start in life that is now so much better than it was.

G. Lapage

RELIGIOUS AND BIOLOGICAL TEACHING

In a short paper devoted to religious and biological teaching in schools on the origin of life and man, Dr. L. M. J. Kramer examines the divergence in educational practice between what he calls the Sunday School, biblical or religious approach to the question of life's and man's origin and the formal scientific and biological teaching about them in schools*. There is always the danger of setting young minds along one of two equally undesirable paths, one materialistic or even anti-religious, and the other taking too little account of the strong appeal of science to the intellect. Before this educational divergence can be reduced, an intellectually satisfying reconciliation of religion as a whole with science as a whole is necessary, and a teacher of religion, or of science, who has not made a reconciliation for himself may be ineffective as a leader of thought. Whatever view we take, evolutionary biology appears as an important social factor, affecting beliefs, and beliefs often precede or condition our actions. Biology teachers in particular wield a powerful social tool, and should be careful how they do so.

The relationship of evolution to religion is not a new problem. There have been, however, recent developments in both evolutionary studies and cognate matters and in religious thought.

In his paper, Kramer reviews some of the newer scientific work and discusses how it may affect school practices, and also attempts to follow some religious trends before suggesting ways along which a reconciliation of science, including evolution, with religion may be reached. There are, he believes, four tests which may be applied before reconciliation is achieved.

The first test is that the strong appeal of science to the reason exposes young students to two dangers. One is that of becoming a prisoner of the reason, requiring material signs and practical evidence for views held in almost every department of life, even for religious beliefs. The second danger, which frequently accompanies the materialistic view, is of losing the power to appreciate simple or beautiful things in Nature or the arts.

Those who grow into such an extreme state of mind are bound to be superficial in their approach to the deeper problems of life. Yet even those who are believers in God and sincere Christians may feel the compelling influences of intellect and reason in connexion with physical matters. The first test of a valid reconciliation must be that it shall provide an escape for prisoners of the reason and also satisfy others who are not unmindful of the appeal to their reason.

The second test of a true reconciliation is that it must be emotionally satisfying. It is not infrequently found that young people mistaking the applications of science to the production of destructive weapons for the quest for truth develop a strong antipathy to the logical processes of thought by which science often achieves its ends and effects. They try to ignore science and become prisoners of strong emotions. The second test of a true reconciliation is that it must provide a different route of escape from that for the intellectual prisoner—an escape from misdirected emotionalism—as well as, naturally, doing no violence to the feelings of those Christians who are not unreasoningly against all that science stands for and has attained.

* "Alpha and Omega". British Social Biology Council Educational Paper, No. 7. (Tavistock House, London, W.C.1.) 1s. 9d.

INDIAN SCIENCE CONGRESS

FORTY-SECOND SESSION

The forty-second Indian Science Congress was held in Baroda during January 4–10 under the auspices of the Maharajah Sayajirao University of Baroda, and was opened by the Prime Minister of India, Shri Jawaharlal Nehru. About five thousand people, including two thousand delegates, attended the session, and there were about sixty guests from countries outside India.

At the beginning of the ceremony, Prof. S. K. Mitra, president of the session, referred to the sudden death of Sir Shanti Bhatnagar, a past general president and an honorary member of the Indian Science Congress Association, and the audience stood in silence for one minute. Welcoming the scientific workers and other visitors to the session, Mrs. Hansa Mehta, vice-chancellor of the University of Baroda and chairman of the local reception committee, made an appeal for the application of science in the service of man so that the destructive potentiality of science could be usefully converted for doing good. In his short inaugural address, Shri Jawaharlal Nehru exhorted the scientists to co-ordinate activities and render all help in framing the Second National Five-Year Plan for the improvement of the conditions of people. The general president of the Association, Prof. S. K. Mitra, emphasized in his address the need for application of modern scientific methods in the industrial sphere with the view of increasing production and making things available to consumers at cheaper prices.

The scientific business of the session was carried out in thirteen different sections representing different branches of science, and twenty-nine symposia on different scientific aspects and problems were held. In all, more than a thousand papers were read. The following popular lectures were given: symmetry in the atomic world (Prof. P. A. M. Dirac); on the human value of scientific progress (Prof. P. Auger); volcanic eruptions (Prof. T. Watanabe); relation of science to democracy (W. Kaempffert); hæmoglobin (Prof. Linus Pauling); scientific foundation of planning in the U.S.S.R. (Academician K. V. Ostrovityanov, leader of the U.S.S.R. delegation); study of India in the U.S.S.R. (A. A. Guber); scientific research in new China (Chien Tuan-Sheng, leader of the delegation of the People's