HOW MANY MORE NEW JOURNALS?

AT a recent meeting of the Scientific Publications Council held at the Ciba Foundation, London, problems arising from the rapid increase in the number of new scientific journals were reviewed. Dr. D. J. Urquhart (Department of Scientific and Industrial Research Lending Library Unit) said that the number of journals taken by the Science Museum Library is increasing at the rate of about 700 a year, or nearly two new journals a day. Present indications are that with the development of new research institutions in China, Japan and other countries, this number is likely to go up to 1,000 or more new journals a year. The reason for the increase is that more money is being spent on scientific research. The increase in the number of journals does not mean that scientists are reading more: inquiry has shown that few individual scientists read regularly more than three or four scientific journals. Most of the smaller libraries take 100–300 journals and the number taken by them has not greatly increased in recent years.

Mr. T. H. Clare (director of Edward Arnold, Ltd.) said it was his personal experience as a publisher that new journals were often started without any expectation of an immediate financial return. A publisher might agree to start a new scientific journal mainly for reasons of prestige or because it might bring him into contact with the prospective authors of profitable books. A journal is less seasonal than many other forms of publication and it provides a useful way of keeping the skilled compositors regularly occupied and so spreading the publisher's overheads. The capital outlay required for the publication of a new journal is relatively small, and there is often a quick return.

Dr. B. M. Crowther (Institution of Electrical Engineers, and editor of *Physics Abstracts*) said that the number of scientific publications is increasing by about 5–10 per cent a year. Scientific information has generally been like an iceberg—with more below the surface than appears on top: but recently we have seen an unfortunate tendency to bring everything to the surface by publishing all the information available. Scientists have recognized the need for order in certain matters such as scientific nomenclature: there is now a need for general agreement in introducing more order into scientific publication. One thing calling for discipline is the habit of some workers of publishing the same material several times. The same work may appear first in a preliminary communication, then in various papers in national and international journals and again, with minor modifications, in congress reports and symposium volumes. Many of the increasing number of conference publications now appearing seem unnecessary: they contain little that is of permanent value and it might be better if they were not published. Conferences might be arranged for discussing recently published work, without the publication of further papers. Some of the smaller foreign universities start new journals apparently for the sole purpose of acquiring other journals by exchange, and many of these are practically valueless. If more work needs to be published, why not increase the size of some of the existing journals?

Dr. D. Richter (director of the Medical Research Council Neuropsychiatric Research Unit) said that while some publishers may play a passive part, there are others who are active in persuading scientists to start new journals. Some of the journals started in this way have proved successful; but with others the editors have found it hard to get sufficient good manuscripts to keep them going, so that standards have tended to fall. There should be sufficient journals to ensure the prompt publication of any worthwhile research: but not so many that there is reduplication and a lowering of standards. There is no means of enforcing any kind of control, but when the problem is more widely appreciated, public opinion may help to keep the number of journals at a reasonable level.

Dr. G. E. W. Wolstenholme (director of the Ciba Foundation) said that a major cause of reduplication is the insistence by university and other committees that those attending meetings should give a paper in order to get their expenses: but some of the more enlightened grant-giving bodies no longer insist on this. Temporary research grants also cause unnecessary publication, since a research worker may feel he must publish a paper to ensure the renewal of his grant.

Mr. A. V. S. de Reuck (international relations secretariat, Royal Society) blamed a tendency in some circles to judge a man by the quantity rather than the quality of the work he published. A higher standard of refereeing is needed to check reduplication and raise the general standard of publication. Prof. G. W. Harris (Postgraduate Medical Federation) asked what would be the result if scientists could be licensed and permitted to publish only one paper and one preliminary report a year?

Dr. R. K. Callow (National Institute for Medical Research) said that the abstractor often finds himself abstracting the same work two or three times; and much of the work coming from some countries is practically worthless. There is a need to return to scientific ethics in ensuring that a paper accepted for publication is really worth publishing. One cannot generalize about the value of conference reports: some of them provide an up-to-date summary of a subject which is extremely useful for those who wish to discover what is going on without the tremendous labour of looking up all the original papers. Dr. C. C. N. Vass (honorary editor *International Abstracts of Biological Sciences*) felt that we are reaching a stage where there is so much printed matter that nobody will read anything. He advised people always to take volume 1 of a new journal, for all the best papers were there. Often it was the only one worth buying, and in any event it would soon be unobtainable. Symposium and conference volumes present a special difficulty for the abstractor, since these may contain a mixture of reviews, original papers and preliminary reports which are very hard to disentangle.

Mr. R. W. David (president of the Publishers Association) said the problem of too many journals falls into two parts. There is first the problem of scientists writing too much; and this can only be

solved by the scientists themselves. They must agree to resist the blandishments of the less scrupulous publishers, who cannot be controlled in any other way. It is natural that publishers should be keen to build up scientific lists, and they may not really be capable of judging quality. The other part of the problem is that even if the scientists agreed to exercise due restraint, there would still be, and increasingly so, more material than can be digested in its present form

by those for whom it is written. A revolution in the means of communicating scientific knowledge therefore seems inevitable. This may take many different forms: microfilming to save library space, abstracting, and the compilation of bibliographies to guide the reader to the essential reading. It would be helpful if scientists and publishers could get together to consider the directions in which these developments could most usefully be trained. D. RICHTER

HUMAN GROWTH

THE recently formed Society for the Study of Human Biology holds each year a symposium on some topic bearing on the evolution, ecology or genetics of man, and these annual events bid fair to become of very wide interest. This year the subject was "Human Growth," and seven papers were given, under the chairmanship of the Society's president, Dr. A. C. Stevenson, and its vice-president, Prof. J. Z. Young. The Society's programme secretary, Dr. G. Ainsworth Harrison, who planned the programme, deserves much praise for his skill in so successfully composing the various views of human growth into a synoptic whole. Some points that the speakers made are given below: the full account of the proceedings is to be published this summer (Pergamon Press).

Prof. Adolph Schultz (Zurich) opened the proceedings with a paper on the comparison of changes during growth in man, apes and monkeys. He emphasized the great importance of such comparative growth studies, pointing out that phylogenetic change results primarily from a modification in the inherited plan of growth or development. Thus an understanding of the evolution of the specific characters of man was largely dependent upon knowledge of the ontogeny of these characters among primates. For example, the cranio-vertebral joint was situated farther forward in man than in any other primate or even any other mammal. But this became an exclusively human attribute only during postnatal life, for the fetuses of all simian primates, in contrast to prosimians and other mammals, were characterized by occipital joints situated far towards the mouth. Post-natally in apes and monkeys the joints were moved backward in position by differential skull growth; but in man this happened to a lesser degree.

In discussing prenatal growth Prof. Schultz showed how in monkeys and man the full-term fetal head fitted the birth canal precisely, whereas in apes the head was considerably smaller than the pelvic ring. Thus in contrast to the apes, neither monkey nor man could afford to go on growing longer *in utero*. The reasons were probably different, however, for monkeys reached a higher degree of skeletal maturity at birth than apes, and presumably birth waited on this. Man, however, was even less skeletally mature at birth than apes, and in this case it was the great growth of the fetal head that was the limiting factor.

These skeletal ossification data served well to show how evolution worked through alteration in the relative timing of patterns of growth, for the general sequence of appearance and fusion of ossification centres was similar in all primates; it was the timing in relation to other events of growth that differed. Prof. Schultz left no doubt in the minds of his

hearers that longitudinal growth-studies of sub-human primates were a high priority in the investigation of human evolutionary change.

Dr. Wilma Israelsohn (Institute of Child Health, University of London) described some of the modes of analysis of human growth data, taking many of her illustrations from the data of the Harpenden Growth Study, which included a number of children measured by the same anthropometrist every six months over a period of eleven years. Dr. Israelsohn stressed the difference between such longitudinal studies and cross-sectional surveys, and emphasized how statistical methods appropriate to the survey type of data became hopelessly inefficient if applied unaltered to longitudinal records. She described some of the recent attempts to fit useful curves to longitudinal growth data, and said that at least two curves were needed to cover the period from birth to maturity. Up to adolescence the simple formulation, stature (for example) = $a + bt + c \log t$ where t was age, gave surprisingly close fits to the data, and after the adolescent spurt of growth had begun the Gompertz curve, also with three parameters, fitted excellently. More complicated form changes involving not one but several measurements could be followed by the method of transformed co-ordinate grids.

Dr. J. M. Tanner (Institute of Child Health, University of London) discussed the genetics of human growth. Like Prof. Schultz, he stressed how species, and also individual differences in adult morphology, depended on genetically determined differential growth gradients during fetal and post-natal growth. He quoted data showing that the fundamental control of the rate of development in man was genetical: thus the age of menarche, the first menstrual period, was probably determined in optimal environmental circumstances by many genes of small effect, like stature. Mother-daughter and sister-sister correlations were about 0.4, and the average difference between identical twins in reaching menarche was about 2 months, compared to about a year in sisters. Skeletal maturity appeared to be similarly inherited, as did many of the more intricate details of the growth curves of body measurements. Dr. Tanner described three regional growth gradients as occurring in man, the well-known cephalocaudal one, a distal-proximal one in the limbs, and a second-to-fifth phalanx one in hand and foot. He ended with a brief account of his own and his colleagues' recent work on the skeletal maturity of *XXY* and *XO* individuals which, he thought, showed that the retardation of development in the male as compared to the female, seen in all primates and perhaps all mammals, was due to genes on the *Y* chromosome, possibly closely related to those causing differentiation of the male gonad.