More than 150 years ago in Edinburgh William Chambers was living in a mean garret in the West Port. He was earning four shillings a week as a bookseller's apprentice. He lived prudently on threepence-halfpenny a day. A 'trade sale' at which he was employed to hand round the books gave him his first start. He took a little shop in Leith Walk. There he was joined by his brother Robert. From the sale of books they proceeded to the printing of bills and notices. They did very well with 'To Let' and quickly achieved the best-seller class with 'Dog Lost' and 'Fresh and Cheap'.

From printing notices it was not an easy step to printing books. But in the ten years between 1859 and 1868 they set the crown on their labours by publishing Chambers's Encyclopaedia in 520 weekly parts at threepence-halfpence each. This enterprise, the work of more than a hundred contributors, under the editorship of Dr. Findlater, was made possible by the remission of the paper duties of threepence a pound in 1861.

You will see, therefore, that Chambers's Encyclopaedia has been flourishing for a hundred years. But although the two editions for which I was primarily responsible bear an historic name, they represent entirely new work.

After two world wars and a couple of revolutions, one social and one scientific, nothing less would do. When their predecessor was originally planned in the 1880's the horseless carriage had indeed been invented, but there were no cinemas, no aeroplanes. The writer on aeronautics in the first edition had no difficulty in dealing with his subject. 'AERONAUTICS', he wrote, 'the art of navigating the air. See Balloon.'

All undertakings have their own problems, problems special to the nature of the work in hand: but this particular enterprise presents a problem of an unusual kind. The essential characteristic of encyclopaedia-making is that the task is cumulative and not repetitive. It is a once-for-all job and you have no sooner analysed and solved one series of problems than the work to which they relate is over and done with and fresh ground has again to be broken.

The prime difficulty of making an encyclopaedia is to determine where to begin. Well, as the King of Hearts said to the White Rabbit, 'Begin at the beginning, go on until you come to the end. Then stop'. This is advice easier to give than to follow. Several alternative beginnings inevitably suggest themselves and if any but the right one is chosen, the cart will have been put before the horse and the vehicle will never run smoothly. The problems then arise of the order in which subsequent activities should be embarked on, and at what points the successive and often parallel stages must be undertaken and woven into the administrative whole.

The editor, of course, starts with a sense of extraordinary exhilaration at the thought of a clean sheet, a free hand and all the elbow room in the world. This turns out to be deceptive but it is a nice idea as long as the illusion lasts. The desirable or conveni-

* The text of a talk given at a Discussion Meeting of the Society, held on 20th February, 1968.
ent qualifications for an encyclopaedist are several: it is unnecessary, even perhaps undesirable that the editor shall be a great scholar in one particular branch of knowledge but it is desirable, indeed essential, that the editor should know scholarship when he sees it and, still more perhaps, should be able to recognize pieces of work which are not quite 'the article'. It goes without saying of course that you must be interested in very nearly everything, entertain no strong prejudices either about people or ideas, and hold fast to one principle—the determination to get the thing right at almost any cost.

We did in fact begin work on the new Chambers’s by determining the size and thus the total number of words. The questions here are—what is the most generally useful size and is this an economically reasonable size. Our view of these two questions was naturally influenced by the fundamental decision already taken, that it was to be a work of first-class scholarship. What is the optimum useful size is really a matter of personal judgment. The 14½ million words of the new Chambers’s was proposed by the managing editor and accepted by the publishers.

Given the size the question of cost then arises and budgets are prepared to include editorial, printing and binding costs in relation to the possible selling price under the conditions likely to prevail when the work is published. From this point on, the task is really a two-fold one; there is the editorial job, the actual text and illustrations, and the administrative or production job.

Some basic editorial decisions have to be made by the editor single-handed at the outset and the two most important of these are, first, proportion and secondly, how the material is to be presented. By proportion I mean the relative amounts of space to be devoted to the respective fields of knowledge. It is unwise to rely on guess-work for this. The whole range of recorded human knowledge has to be classified into appropriate, and practicable, categories, about 50 in all. The relative amount of space devoted to these main classifications by all available existing works of reference should be examined and then your space can be allotted, relying on personal knowledge of the value of existing encyclopaedias and, in the ultimate resort, according to your own fancy or judgment. Cutting up, pasting, classifying, measuring and listing the articles in the old Chambers’s took seven people nine months. I must here record a minor triumph. We succeeded in doing away with that perennial nuisance, the classification Miscellaneous.

How to present the material raises some interesting questions. There is no doubt that self-indexing dictionaries of knowledge are both attractive and useful and classified encyclopaedias offer great opportunities to the scholar and are economical from the point of view of the publisher. I discarded both notions. The dictionary, because in my view it is impossible to present scholarship of the first order in this fashion; the classified encyclopaedia, because of the practical difficulty of using it. I believe that we must accept as a principle the comprehensive article or treatise; that such articles should be written to a standard pattern; and that they should be supported by shorter subsidiary articles amplifying the principal developments of the topic; and by brief entries to cover minor matters.

Other editorial decisions which have to be made in advance deal with such matters as spelling, the transliteration and spelling of foreign names, the typographical style which includes the correct use of capital letters, as well as the patterns I have spoken of for several categories of articles—those on countries, on industries, on biographies, on diseases and so on. It is only after all this ground has been worked over that it is possible to join in the great men and it took me about fifteen months, with a staff of three or four people, to get this far. I was able to enrol the help of the first advisory editor then, the first of fifty-two, each a noted expert in a particular branch of knowledge; the last came nearly a year later. When I say men, by the way, will you be good enough to understand women as well. The notion of any sex discrimination never entered into my calculations and I was both
irritated and amused by one of the reviewers who remarked:

'It has been noted of the new Chambers's that it is the first work of its kind and magnitude to be edited by a woman. It is of interest to add that no feminist bias has swayed Mrs. Law in her choice of colleagues. The sex, indeed, of nine assistant editors is not indicated; but of 52 advisory editors only three are certainly, or even probably, women; of 22 advisers to the advisory editors, only two.'

We did in fact have four out of the fifty-two advisory editors who were women, but this was purely accidental. I certainly don't know how many women are numbered among the contributors; naturally they were very numerous because our principle was to choose the best that we could get for every topic.

The advisory editors to Chambers's did edit and did advise. The great art in achieving this desirable end is to limit the tasks you ask them to do to those that are feasible for them to carry out. I bore in mind that academic people are usually busy and exceptionally so at certain times of the year, and secondly that they are virtually without any clerical or office assistance of any kind. This means that if waited upon they are very ready indeed to say 'Yes', even reader to say 'No! we can't have that at any price', and will cross things out or fill in blanks quite painlessly. We avoided asking them to conduct any correspondence at all, certainly any with contributors, or to keep any records of any kind, or to receive or acknowledge manuscripts, or sub-edit manuscripts. What we did ask them to do was to tell us the articles we ought to have, the articles we ought not to have, and what these articles ought to contain and who ought to write them. And, at a later stage, to read, consider and advise on related groups of articles in company, if necessary with some of their colleagues, thus to help to close gaps and eliminate overlap; to pronounce on articles of doubtful value and to fortify us with their advice in dealing with problem contributors.

For, of course, there were problem contributors; there were one or two who didn't take us seriously enough; there were many hundreds who took us so seriously as to feel we had grossly under-estimated the importance of their subject and supplied us with what they felt was a more just allowance of words, including the expert who tried to overrun his space by 600 per cent; there were those who felt that specialists in a related field might be superficial on a borderline topic. The articles on BOG and MOSS, two things, I imagine, which anyone could recognize, were in hand for months, passing to and fro.

The anthropologist wants to write on blood groups, so does the medical expert. The scientists, the literary critics and the lawyers all want to write on Francis Bacon. And, of course, who were the best writers, and in the immediate post war years, could we get them? The expert on Flags, Dr. Neubecker, lived in Berlin, and in the Russian zone too. On Chinese Literature we wanted Professor Chi-Chen Wang in New York. How about dollars to pay him? Our attempt to pay one contributor living in semi-starvation in what had been enemy territory brought me a sharp reminder from the authorities that I was making myself liable for two years in Holloway. The contributor who employed a professional smuggler to get his MS to us pulled it off quite successfully. Unexpected experts were the distinguished classical scholar who turned out to be one of the world's greatest authorities on croquet and the cathedral cleric who was the acknowledged expert on motor cycles.

There are, of course, some special problems of editing a general work of reference. There is the composite article—I don't mean the article on FRANCE which will include sections on geography, zoology, social conditions and so on from half-a-dozen different hands which can be planned ahead—I mean those that tend to elude you: NEPTUNE, for example, where we had to combine the Astronomer Royal with the Professor of the History and Philosophy of Religion; CHRONOLOGY, in which the Astronomer Royal appears again in company with the archaeologists; the articles on RIVERS

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of the layman, that is the kind of title the earnest enquirer might be inclined to look up and, at the same time, it must be acceptable to the specialist. In some fields of knowledge this raised peculiar difficulties—post-Keynesian economics, atomic and Einsteinian physics, physiological botany, for example, all resist the strait jackets of well-acclimated nomenclature, to say nothing of the tendency towards synthesis in so many other fields. The struggle to categorize for this purpose and to find clear, accurate and brief headings was severe. Apart from the heartsearchings which lay behind the discarding of *WATER UPTAKE IN PLANTS* and the conflicting claims of *ATOMIC ENERGY*, *ATOM*, *NUCLEUS OF THE* and *NUCLEAR FISSION*, I well remember one article which raised problems in this regard—that on the various ways of disposing of dead bodies: *Burial Customs* won’t do, for it doesn’t include cremation, nor will *Burial and Cremation* for that wouldn’t include mummification, cannibalism and exposure to birds of prey. The title we chose in the end, *DEAD, DISPOSAL OF THE*, was not perhaps one of our happiest inspirations but it was the best we could do.

Once the advisory editors got underway, of course the administrative problem began to grow, for after all the work had to be printed and produced at a specific date. In building an administrative staff I had to choose, as far as about three-quarters of the various stages was concerned at all events, between a horizontal structure or what I might call a pool system, and a vertical structure or the team system. I chose the team system because although it is more difficult administratively and less efficient, at any rate from the point of view of productivity, it does better editorial work. I started off, therefore, with a number of assistant editors working full-time in the office with me, whose principal duty was to take charge of one or more advisory editor, his material and his contributors. These were the people who did the donkey work of which the advisory editors were relieved. They made endless schedules of titles, calculated lengths, conducted correspondence, sub-edited manuscripts, all of course in close consultation with the outside adviser with whom they were in constant personal touch. Each assistant editor was helped by his own little group of sub-editors for whose work he was responsible. The assistant editors under these conditions had to be chosen not only for their book-learning but for their judgment and tact rather than for talents in organization or staff management.

The heart of the administrative problem, however, lies in the records; for making an encyclopaedia is almost wholly a matter of detail. Once the broad lines of policy have been decided by the editor beforehand there is no further room for people who like taking broad general views. An article won’t do if it more or less fits in with our general policy, it has to fit in precisely with our detailed needs. And running alongside of this editorial detail are the needs of the printer. With the consequent successive stages of the work, our records office, therefore, was at once a registry, a statistical office and a progress reporting agency. It had to keep track of (a) articles proposed, (b) articles invited, (c) invitations accepted, (d) of individual, departmental and total lengths commissioned, received, sent to printer. And later on (e) galley proofs make-up, page proofs and index. The articles alone used up 47 big steel cabinets holding about 30 to 40 thousand files. Then we had other cabinets holding elaborate card index-systems—about 310,000 cards. And in the later stages manuscripts, slip proofs and page proofs were all being received, recorded and sorted in hundreds every day.

At our peak period we had nearly 50 people working in this one department the majority of whom were university graduates. In addition to the assistant editors and their teams and the records office we had a secretarial office dealing with all correspondence,
staff problems and payments to contributors. And a separate illustrations department with a staff of artists and research workers.

Very roughly speaking this was the pattern of our organization until, 18 months before the volumes actually appeared we started putting material into page form and began on the various indexes. These stages were radically different from what had gone before and necessitated a quite different setup. The main subject index alone—of about a quarter of a million entries—took us nearly a year to make and every person who worked on it, about 25 or 30 people, I think, had to be taught the technique from the ground up.

I believe that in 1950 this Encyclopaedia was the biggest single printing job in this country since before 1914 and, in order to publish the 15 volumes simultaneously, it was necessary for us to employ seven different firms of printers all working at the same time. The problem of securing a complete uniformity of style and the complicated time schedules of copy, galley proof, page proof, foundry proof, were almost child's play compared with that of fixing in advance what article would fall in which volume so that we should not find ourselves sending to Edinburgh an article, which by reason of its alphabetical order, would ultimately fall into the volume being printed in Suffolk. For of course editorially speaking the articles were not prepared in alphabetical order, regardless of what they were about. The editors worked according to departments of knowledge, that is, the ANTHROPOLOGY, for example, from Animals, Domestication down to Zulu was dealt with as a whole and the articles were prepared and sent to the printer in the order which seemed most important from this point of view. We did in fact solve this problem with a very high degree of success on the basis of arithmetical calculations. We measured the proportions of material appearing in successive letters of the alphabet in half-a-dozen other general encyclopaedias, struck an average for each letter, expressed these averages in terms of our space and then translated these quantities into actual articles. These complicated mathematics actually worked out right, very much, I must confess, to my surprise.

There are perhaps two points which I should like to mention in conclusion, one is the difficulty which we experienced in finding people, especially young people, and of course I am speaking of university graduates, who really appreciated the difference between the first-rate and the second or third rate and who really minded enough about accuracy.

And the second point is that this job demonstrates in the most fascinating way the changes in tastes and judgments and ideas of value over the generations. In examining the old edition of Chambers's which in its main features dated from the '80s of the last century, the longest literary biography after Shakespeare was on George Eliot. It occupied six and a quarter columns. In the new Chambers's this biography has two columns and eleven lines. In the old Chambers's, religion, theology and biology together accounted for a fifth of the whole work; in the new edition they occupy a little more than one-tenth. Physics has nearly double the space it had before, but still occupies less than either religion or biology. Economics and industry, the social sciences and education all expand, not only their actual but their relative proportions. These changes are, I suppose, a reasonably accurate reflection of the changing ideas of our society.

It is hoped to print a brief account of the discussion which followed Mrs. Law's talk in our next issue.

Reviewing The practice of history by G. R. Elton (Methuen for Sydney University Press) in The Daily Telegraph of 9th November, 1967, Ivan Roots says that the book 'conspicuously lacks two things: a sense of tolerance . . . and an index. The latter is perhaps the more serious omission'.