larger museums, but its fulfilment, both in Great Britain and elsewhere, would seem to require closer co-operation between the museums, all other kinds of educational institutions, scientific and art societies, and individual specialists than has generally been the case hitherto. Only when the work of each is mutually understood and appreciated will the museum be able to establish itself fully as the link between the research worker and specialist, who continually advance our knowledge, and the ordinary men and women, who need to be kept informed of such advances.

With regard to school services an interesting development in the Dominion Museum is well worth attention. Before the War, this Museum provided regular instruction for visiting classes of school-children. On each visit the children were first given a lecture—usually illustrated by a film—in the lecture hall. There then followed a lesson in the Museum. Here the children were divided into groups, each of which was under the charge and instruction of a student teacher from the training college. Six teachers at a time attended the Museum for this purpose for a period of six weeks, and in this way gained valuable experience in the use of museum material. They, themselves, were instructed by members of the Museum's professional staff, and so, ". . . the value of the museum to the community was emphasized to the students, who left the institution with sufficient knowledge of its capabilities and functions to enable them to educate their future charges in the purposeful use of the public museums". Part 2 of this valuable pamphlet deals more particularly with the present buildings, administration, equipment, finance, etc., of New Zealand museums.

Belgian Biological Publications during the War

Dr. Julian Huxley has received a letter from Prof. C. J. Van der Klaauw, of the Department of Zoology of the University of Leyden, and one of the directors of *Acta-*, *Folia-*, *Bibliographia-*, *Bibliotheca-Biotheoretica*. Prof. Van der Klaauw states that he is well, as is also his lecturer in experimental zoology, Dr. N. Tinbergen, although both of them spent some two years in a concentration camp, with about twenty of their colleagues from Leyden. After release from imprisonment, Prof. Van der Klaauw was exiled to the eastern part of Belgium. He adds that Prof. H. J. Jordan, professor of comparative physiology in the University of Utrecht, died of apoplexy during the War.

During the occupation of Belgium, vigorous efforts were made—with a considerable measure of success—to keep alive the biological journals referred to above, and to maintain their international character. Since May 1940, the last two parts of vol. 5 of *Acta Biotheoretica* have appeared. They contain a paper by a German (Frieling), three by writers in the United States (Rashevsky, Lafleur) and one by a Russian in France (Kostitzin, in French). Vol. 6 appeared in 1942, containing four papers in German (Friederichs, Hofstaetter, Kuhn, Meyer-Abich), two by a Pole (Wilzýnsky, in English and French), and one by a Dutchman (Ariëns Kappers, in English). Vol. 7 appeared in 1943 and contains three papers in German (Meyer-Abich, Friederichs, Thienemann), one by a Norwegian (Ubisch, in German), three by Dutchmen (Voûte, Raven, Pos; two of them in French, one in English); two papers by a Pole (Wilzýnsky, in English). Another paper by Wilzýnsky (in English) and one by a Dutchman (Baas Becking, in English) will fill part of the next volume. The series entitled *Bibliotheca Biotheoretica* started during the War. There have appeared: No. 1 (1941), a paper by Prof. H. J. Jordan, in German; No. 2 (1942), a rather long paper in German by a Russian (Schaxel); No. 3 (1942), a long paper in English by Dr. N. Tinbergen; No. 4 (1944), a long paper in English by two Dutchmen (Booy and Wolvekamp). In the series *Bibliographia Biotheoretica* there appeared: Vol. 2 (literature 1930–34) in 1941, the last part of Vol. 3 (1935–39) in 1942, and in 1944 the first part (82 pp.) of the fourth volume (literature 1940–44).

Prof. Van der Klaauw and his colleagues have clearly done their best to maintain the international scope of the periodicals produced by the Prof. Dr. Jan Van der Hoeven-Stichting. They hope that British scientific workers will use their journals in the future.

Historical Background of Planning

In Occasional Pamphlet No. 1 issued by the Society for Freedom in Science (April 1945. 1*s.* 6*d.*), under the title "Is the Progress of Science Controlled by the Material Wants of Man?", Dr. F. Sherwood Taylor makes a spirited attack on the main thesis of a memorandum issued by the Association of Scientific Workers in November 1943 on "The Development of Science". Dr. Taylor challenges the historical arguments advanced in that memorandum in favour of the planning of science and, apart altogether from the question whether or not those arguments are justly inferred from true historical data, Dr. Taylor's pamphlet is to be welcomed as a corrective to an undoubted tendency to mix propaganda and history. It should stimulate clearer thinking about the development of science: science, he reminds us, is something done by people, and if it is organized at all, it is organized by people. He urges that no causes should be looked for outside the internal logic of science, until those within it have been exhausted. Listing the great discoveries of the years 1775–1800, he considers that only Watt's improvements in the steam engine, Cort's puddling of iron and Jenner's vaccination can be said to be dictated by human needs; and similarly, while applied science workers are concerned to bring the discoveries in pure science into rapid use, the great discoveries of the last fifty years were not dictated by human needs. Simply from the point of view of causing discoveries to be made, the community must take a long-term view and encourage science to advance in its own way.

Dr. Taylor frankly challenges the practicability of planning pure science, even by men of science; let the community plan applied science if it can, he says. If any planning or direction of funds has to be done, let the planning and direction be on the basis of the maximum increase of research directed to knowledge and irrespective of use. But while he rightly argues that to ensure the maximum of scientific research will give the maximum useful rewards to the whole world, he passes over the fact that resources are limited, that the research front is uneven and advance in some fields is retarded by neglect elsewhere. So, too, while he is right to urge the reading of the works of the great men of science instead of modern books advancing not wholly uncoloured views about them—advice which might well be heeded by many scientific workers, apart from the public, who would thus be better able to

understand the nature of the scientific man and his methods—he is just a little too sweeping in his condemnation of the reading list provided in the A.S.W. pamphlet, and he might have strengthened his case by a reference to the "Source Books in the History of Sciences" published by the McGraw-Hill Book Co., which within their limits overcome the difficulty of accessibility to which Dr. Taylor refers.

Colonial Geological Surveys of Africa

Sir Edmund Teale's important address on "The Contribution of Colonial Geological Survey to the Development of the Mineral and other Resources of East and West Africa", delivered before the Royal Society of Arts, is published in the Society's *Journal* of April 13, 1945, pp. 245–56. The success of the early mineral surveys, of which the first was started in Nigeria in 1903, made it clear that larger staffs and fuller facilities for the wide extension of geological work on more systematic lines would be amply justified. The first permanent Geological Survey was started on the Gold Coast in 1910, to be followed in 1918 by one in Nigeria, and later by others in Uganda, Tanganyika, Nyasaland, Sierra Leone and Kenya. Their economic activities are summarized as (*a*) *exploratory*: dealing essentially with investigations which yield results in the actual discovery of new deposits of minerals, or in mapping the geological features which assist prospectors or mining engineers to locate and open up mineral occurrences; and (*b*) *advisory*: including numerous forms of assistance regarding engineering, industrial, commercial, agricultural and welfare interests (for example, water supply, soil conservation and site locations). Much of this assistance, though it has far-reaching influence on colonial development, does not usually lend itself to statistical valuation.

On the exploratory side, however, actual mineral discoveries by Survey geologists have yielded direct revenue in royalties alone which have repaid many times over the total cost of all the Colonial Geological Surveys. The cumulative values of some of the more important Survey discoveries are as follows (up to 1939 or 1940):

Gold Coast	Diamonds	£7,613,186
	Manganese ore	10,062,594
Sierra Leone	Iron ore	2,640,966
	Diamonds	4,700,272
Nigeria	Coal	1,860,000

Certain other minerals, such as mica, tin and tungsten ores, and above all bauxite (of which the estimated reserves are 250 million tons in the Gold Coast and 60 million tons in Nyasaland), have afforded important supplies to the strategic mineral requirements of the War.

High Polymer Bulletin

Anyone familiar with present developments on the academic side of micro-molecular chemistry and physics cannot fail to be impressed by the contributions made to the subject by Prof. H. Mark, now of the Polytechnic Institute, Brooklyn, New York. In this Institute there has been established a Bureau of High-Polymer Research, the business of which is to carry out research on all problems of high-polymer chemistry and to organize and to conduct courses of instruction and also discussions on various aspects of the subject. In order to let the scientific public know more about the activities of the Bureau than would be gleaned by reading papers in the scientific journals, a *Polymer Bulletin*, issued bi-monthly, has made its appearance under the editorship of Paul M. Doty. The first number gives a brief description of some of the equipment of the laboratory and of the researches now in progress, but not yet published in the usual journals. While this preview of what is to come from the laboratory is of great interest to high-polymer chemists, it is somewhat unusual, and incidentally an interesting experiment, to find an academic laboratory publishing its own 'science news'. Thus yet another publication is added to the list which a busy investigator must scan to make sure that his own work is not likely to be out of date before it is published. In a quickly advancing subject like high polymers, at the present stage the desire to found new journals inevitably arises; the measure of success depends upon what support is given to the venture in its initial stages.

The World To-day

With its last issue, for June 23, the *Bulletin of International News* has been replaced by a monthly review, *The World To-day*, and a *Chronology of International Events and Documents* appearing twice monthly. Each issue of the former will contain "Notes of the Month" and five or six articles. The first issue for July includes five, dealing with the municipal elections in France, the Allied zones of occupation in Germany, Germany and European reconstruction, international air transport and Guernsey under German occupation. It is hoped that by articles giving factual background to current international problems and first-hand accounts of conditions in foreign countries, *The World To-day* will help to meet the demand of the general reader for such factual information; while the Supplement will be for the specialist who requires the reference material in connexion with his work as a student of international affairs, lecturer or writer, business man or diplomat. The new arrangement will also permit the most economical use of the available paper.

Energy Regulators

The energy regulator made available by Sunvic Controls, Ltd., operates by periodically switching the power on and off, the ratio on-time/total time determining the average power input. The regulator is generally cheaper and far less bulky than a variable resistance. The control is effected without the energy loss in a resistance, it is variable continuously from no load to full load, and is substantially independent of mains voltage fluctuations up to about 20 per cent. Two forms are available, one for industrial purposes having a minimum time-cycle of about 30 sec., and another for laboratory use with a cycle of about 10 sec. The regulator consists essentially of a bimetal strip carrying a heater winding, connected in parallel with the load to be controlled. A snap action switch is in series with the load and is normally closed, so that current flows through the heater winding and through the load. The bimetal warms up and, in bending, opens the switch, interrupting the current both to the heater winding and the load. The bimetal then cools down and the cycle is repeated. The ratio of the time during which the contacts are made to the total time of the cycle determines the average input.

Some applications of the regulator are as follows: (1) in apparatus where it is inconvenient or impossible to fit a thermostat—for example, hot plates, injection moulding nozzles, moulding platens, etc.; (2) for small, high-temperature ovens and furnaces where