under-developed areas of the world. Apart from recording President Eisenhower's statement of December 8, 1953, the report makes no other reference to the use of atomic energy for peaceful purposes. The report also puts on record the opinion of the United Nations Commission on the racial situation in the Union of South Africa that the doctrine of racial superiority, on which the apartheid policy is based, is scientifically false, extremely dangerous to internal peace and international relations, and contrary to the dignity and worth of the human person; but the report is so careful to give both sides of the case, and to avoid giving offence, that it presents a picture of frustration which, while it may exceed the reality, completely bewilders the ordinary reader.

It is a relief to turn to the chapters of the report which deal with economic and social questions where, by and large, the United Nations is carrying on so much that was begun under the auspices of the League of Nations. In the field of narcotic drugs, 6-methyl-Δ-6-deoxymorphine and its salts and five synthetic narcotic drugs have been brought under control, and a new list of factories manufacturing narcotics has been completed on the basis of information supplied by governments and will be published shortly. A programme of studies on the cultivation and wild growth of the cannabis (Indian hemp) plant, the production, licit and illicit distribution and consumption of drugs from it and their control has been approved, and papers on synthetic substances with morphine-like effects and on addiction-producing effects in relation to chemical structure have been prepared, while a programme of scientific research on opium continues to be pursued.

On the Expanded Programme of Technical Assistance for the economic development of under-developed countries, the report adds little to recent reports (see *Nature*, November 20, p. 960). Reference is made to the easing of financial management which resulted from the holding of the pledging conference before the beginning of the year, but financial resources are still inadequate to meet all the requests received. Of the 23·5 million dollars earmarked for expenditure in 1953, 18·1 per cent was for health services and 7·7 per cent for educational purposes, including research. For 1954, 75 per cent of total resources, excluding carry-overs, will be automatically available for allocation to the participating organizations, but the system of allocation for future years is under review. Commenting on the regular programme of technical assistance, the report notes that technical assistance has become an accepted means of international co-operation and has been instrumental in changing the climate of opinion in international affairs. More intensive use of its possibilities has been assisted by a better-defined conception of technical assistance in most recipient countries, and in a measure the success of technical assistance projects is indicated by the increase in their average duration. In discussing the development of public understanding generally, the Secretary-General suggests that the Technical Assistance Programme has been an important factor in the growth of public understanding at least of the non-political work of the United Nations during the past twelve months. It is clear that much remains to be done, though the means by which such educational work is best effected calls for further discussion than is possible in the present report. There are some sound comments on the role of the Secretariat; but while the Secretary-General rightly insists that there are limits to the work which can be entrusted efficiently and effectively to a Secretariat of any given size, and even to the amount of work which can usefully be undertaken by an international organization not circumscribed by such limits, his references to the question of staff loyalty and independence on which the smooth functioning of an international civil service fundamentally depends are purely factual and fail to bring out what is at stake.

ORIGINS OF THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

IN the 1954 Year Book of the International Council of Scientific Unions*, the secretary-general, Prof. A. V. Hill, contributes a valuable account of the origins of the Council. In the latter part of the nineteenth century a number of international scientific organizations were started. Some were to advance science by direct co-operation. Others were to facilitate personal acquaintance and interchange of opinion; international scientific congresses held periodically are in this class. Others aimed at establishing uniformity of standards of measurement, and of these the earliest was the Bureau International des Poids et Mesures, which was established at Sèvres in 1873 as the outcome of an international commission set up in 1869 for the construction of metric standards.

For some years before 1898 the Academies of Munich and Vienna, with the Royal Societies of Göttingen and Leipzig, had met annually as an association to discuss matters of common interest. In 1898 the meeting was to be held in Göttingen, and the Royal Society of Göttingen invited the Royal Society of London to take part; the latter agreed to join the association if its scope was so extended as to assume a fully international character. In 1918 the Royal Society, the Academy of Sciences in France and the National Academy of Sciences in the United States discussed informally the future organization of scientific undertakings which had been carried on before the First World War by international co-operation; ultimately the academies of all the Allied countries were invited to send representatives to a conference which took place in London in October 1918. This was followed by a meeting in Paris a month later, when an executive committee was appointed to draft the statutes for an International Research Council which, with a number of affiliated International Unions, might deal with matters of international scientific interest. A General Assembly of this Council was held at Brussels in July 1919, when the statutes of the Council were approved. International Unions for Astronomy, Geodesy and Geophysics, Chemistry and (shortly after) Mathematics were formed: and to these were later added Scientific Radio, Physics, Geography, Biological Sciences, Crystallography, Theoretical and Applied Mechanics, History of Science, and Mathematics (reconstituted in 1952).

At the start, the International Research Council retained control over the Unions and only allowed countries to join the Unions which already adhered to the International Research Council. Differences

* The Year Book of the International Council of Scientific Unions, 1954. Pp. ii+82. (London: International Council of Scientific Unions, c/o Royal Society, 1954.)

of opinion about this and other matters led to a reorganization in 1931, by which the Council was transformed into the International Council of Scientific Unions. Under the new arrangement the Unions became autonomous within the framework of the new Council, the General Assembly was permitted to meet elsewhere than in Brussels, and adherence of a country to any Union no longer required adherence to the Council.

In 1946 the United Nations Educational, Scientific and Cultural Organization (Unesco) was formed and a formal and mutual draft agreement between Unesco and the International Council of Scientific Unions was approved by the Council in 1946 at its first General Assembly after the Second World War. This agreement was modified in 1947 and again in 1952. The present agreement is described in the year book of the Council, which also contains details of members of the various councils, statutes and rules, the activities of the Council and the state of its finances.

WEIGHING IN THE LABORATORY

THE principles of the design, adjustment, use and testing of good-quality knife-edge balances and weights employed for precise weighing in scientific laboratories forms the subject of the seventh in the series of "Notes on Applied Science" issued by the Department of Scientific Research*. The information given, which is based largely on the experience gained at the National Physical Laboratory, Teddington, in maintaining the standards of mass and in testing weights and balances, should be of great value to those in industry and research who are concerned with precise weighings.

The contents, which are in two parts dealing respectively with knife-edge balances and weights, are much more detailed than in previous numbers of the series and include illustrations of the precision 1-kgm. balance at the National Physical Laboratory which is used for the comparison of national standards of mass, of the Imperial Standard Pound and the British National Copy of the International Kilogramme, and several tables and three appendixes. In Part 1 the chief features—functioning and adjustment of the simple equal-arm balance—are outlined clearly and fully with particular emphasis on the essential practical requirements. Various types of balance are discussed, and comparative information is summarized in two useful tables. The methods and technique of weighing are described, and net buoyancy corrections to obtain mass from weighings in air, and values of the density of air for the ranges 5–30° C. and 600–800 mm. of mercury are tabulated. A clear distinction is drawn between the conceptions of sensitivity and accuracy of performance of a balance, and a guide is given to the varieties of balances readily available.

In Part 2 the suitability of the various materials used for the construction of weights is considered first. Plain polished brass is unsatisfactory; and, of the coating materials, lacquer is too hygroscopic, uncoated nickel plating fogs and gold plating is often porous and is also liable to loss of weight due to wear. The construction, adjustment and tolerances are discussed next, followed by a brief description of the tests and methods of verification of weights carried out at the National Physical Laboratory, which will be of considerable interest to those who are contemplating sending weights for test at the Laboratory or who intend to carry out their own tests.

In the three appendixes, the simple fundamental analysis of the equal-arm undamped knife-edge balance substantially as given in Glazebrook's "Dictionary of Applied Physics", the mathematical discussion of the motion of the damped beam, and the effect of air-buoyancy on a single-pan balance are given separate treatment.

* National Physical Laboratory Notes on Applied Science. No. 7: Balances, Weights and Precise Laboratory Weighing. Pp. iv+42+plates. (London: H.M.S.O. 1954.) 2s. net.

AGES OF URANINITES BY A NEW METHOD

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IN a previous communication in *Nature*[1], I suggested that the generation by radioactive decay of smaller atoms of tetravalent lead within the crystal lattice of uraninites caused a shrinkage in the unit cell proportionate to time; some preliminary results were given in a table. Using artificial uranium oxide (UO_2) as an end-point to denote zero time, four results clearly supported the thesis; but three others, agreeing well among themselves, were apparently too high and in conflict. Further work has indicated an obvious solution, namely, that there are, in fact, two different types of uraninites involved: those agreeing with the thesis I call α-uraninites and are considered normal; those which are apparently anomalous are called γ-uraninites.

The pitchblendes are classified as β-uraninites. As their spectra are usually too poor for accurate measurement, they are for the moment disregarded for age determination. Present work indicates that they are abnormally high in oxygen; this excess can be removed by heating in hydrogen to give cube-edges comparable with α-uraninites for purposes of age determinations; these results will be shortly announced.

The characteristic feature of γ-uraninites is that their cube-edges are reduced on heating in air to correspond to that of an α-type analogue, whereas α-uraninites upon similar treatment disintegrate to give an X-ray pattern of U_3O_8. This phenomenon was first detected in two analysed samples, previously given as from Namaqualand, but more accurately, from the Gordonia district, South Africa[1]. In presenting the data, a thoria correction—also discussed previously—has to be applied, and this is -0.0013 A. for each per cent ThO_2 when $ThO_2 + UO_2$ total 100 per cent—this suffices for a first approximation. The thoria content differs slightly in the two samples, which gave the following results:

	GORDONIA (Holmes) γ-type	GORDONIA (Mountain) α-type
Untreated	5·485 A.	5·444 A.
Corrected for ThO_2	5·462 A.	5·428 A.
Heated	5·450 A.	(disintegrates)
Corrected for ThO_2	5·427 A.	