this primitive root modulo $2^{n'}-1$. We have thus coped with the following values of n: 2, 3, 4, 5, 6, 7, 8, 13, 14, 17, 18, 19, 20, 31, 32, ...

Other values of n may be dealt with in a slightly less elegant manner that will be exemplified by the case $n=10$. Let the first three binary digits, regarded as a binary number, run periodically through the sequence 4, 5, 6, 7, 4, 5, 6, 7, etc., and let the last seven binary digits, also regarded as a binary number, run periodically through the sequence $0, g, g^2, g^3, \ldots, 1, 0, g, g^2, g^3, \ldots$. Since 4 is prime to 2^7-1, the length of the entire period is 2^9-4, the only omitted 10-tuples, beginning with a 1, being

1001111111
1011111111
1101111111
1111111111.

These four 10-tuples may be appended if desired.

This method should be adequate to deal with all practical values of n not covered by the above list.

I do not know whether a list of primitive roots of Mersenne primes is already available. If not, it would be very easy to obtain them with the aid of an electronic computer, up to $p=31$.

For application of similar methods for non-centrosymmetrical crystals it may be of value to know more about the prime factors of numbers of the form 3^m-1, say. I do not know whether this problem has interested number theoreticians.

APPENDIX

Terminology of the theory of numbers

For the convenience of readers who are not familiar with the elementary theory of numbers I here list all the relevant terminology and other facts.

A prime number is an integer, $q(q \geq 2)$, not divisible by any other integer except 1. Two integers are said to be equal or congruent modulo or mod q and to belong to the same residue class or residue of q if they differ by a multiple of q. Each residue class of q can clearly be represented by one of the numbers $0, 1, 2, \ldots, q-1$.

According to Fermat's 'little theorem', if q is prime and a is not a multiple of q, then a^{q-1} is congruent to 1 mod q. For example, 3^6-1 is a multiple of 7.

A primitive root of a prime number q is a number g such that $g, g^2, g^3, \ldots, g^{q-1}$ runs through all residues of q except 0. Every prime number has at least one primitive root.

A quadratic residue of a prime, q, is a residue that is congruent to a square of an integer. The product of two quadratic residues is clearly a quadratic residue. The binary representation of an integer N is exemplified by $13=1101$, which means $1\cdot2^3+1\cdot2^2+0\cdot2^1+1\cdot2^0$, just as in the decimal representation 13 means $1\cdot10^1+3\cdot10^0$. Most modern electronic computers work internally with binary representations.

I am indebted to the Admiralty for permission to publish this paper.

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Notes and News

Announcements and other items of crystallographic interest will be published under this heading at the discretion of the Editorial Board. Copy should be sent direct to the Editor (P. P. Ewald, Polytechnic Institute of Brooklyn, 333 Jay Street, Brooklyn 1, *N.Y., U.S.A.) or to the Technical Editor (R. W. Asmussen, Chemical Laboratory B of the Technical University of Denmark, Sølvgade* 83, *Copenhagen K, Denmark)*

International Union of Crystallography

1. The Executive Committee very much regrets to announce that the Editor of *Acta Crystallographica*, Prof. P. P. Ewald, has requested to be released from his responsibilities by the end of the current year. The question of his succession was given the most thorough consideration before and at the meeting in Leningrad. The Executive Committee then decided, in accordance with Statutes 5·4 and 6·1, to appoint the present Editor of *Structure Reports*, Prof. A. J. C. Wilson, as Editor of *Acta Crystallographica*, and to appoint Dr W. B. Pearson as successor to Prof. Wilson as Editor of *Structure Reports*. Both appointments will take effect as from 1 January 1960.

2. Another important decision taken by the Executive Committee at its meeting in Leningrad was a readjustment of the prices of Volumes 1–6 of *Acta Crystallographica*, and of Volumes 9–13 of *Structure Reports*, together with the introduction of reduced personal prices for this latter publication for *bona-fide* crystallographers in countries adhering to the Union. As from 1 January 1960 the prices will be as follow:

Acta Crystallographica

Volumes 1–4:	
Regular price per volume	D.Cr. 100 (£5 or $14)
Reduced price for individuals	D.Cr. 60 (£3 or $ 9)
As from Volume 5:	
Regular price per volume	D.Cr. 180 (£9 or $25)
Reduced price for individuals	D.Cr. 100 (£5 or $14)

The price of single issues will be D.Cr. 20 (£1 or $2·80) for all volumes except Volume 5, for which this price will be D.Cr. 40 (£2 or $5·60).

Structure Reports

	Regular price	Reduced personal price
Vol. 8 (1940–41)	*f.* 80 ($21·50)	*f.* 45 ($12·00)
Vol. 9 (1942–44)	*f.* 70 ($19·00)	*f.* 40 ($11·00)
Vol. 10 (1945–46)	*f.* 55 ($15·00)	*f.* 35 ($ 9·50)
Vol. 11 (1947–48)	*f.* 100 ($27·00)	*f.* 55 ($15·00)
Vol. 12 (1949)	*f.* 70 ($19·00)	*f.* 40 ($11·00)
Vol. 13 (1950)	*f.* 100 ($27·00)	*f.* 55 ($15·00)
Vol. 14 (Supplement and Index)	*f.* 35 ($ 9·50)	*f.* 20 ($ 5·50)
Vol. 15 (1951)	*f.* 110 ($29·50)	*f.* 60 ($16·00)

Institutions, companies and libraries wishing to complete their sets at the present prices are advised to ensure that their orders, with remittance, are with the appropriate publishers before the end of the current year.

It should further be noted that orders of copies of *Structure Reports* at the reduced personal prices will be accepted (as from 1 January 1960) only if they are placed directly with the publishers, and that a special order form will have to be used. Copies of this form can be obtained from the publishers, N. V. A. Oosthoek's Uitgevers Mij in Utrecht, Netherlands, Domstraat 1–3, or from the Secretaries of the National Committees for Crystallography (see *Acta Cryst.* (1959), **12**, 616).

International Union of Crystallography

World Directory of Crystallographers

In 1957, just before the Fourth International Congress and General Assembly of the International Union of Crystallography, a first edition of a *World Directory of Crystallographers* appeared. This *Directory* was compiled by Dr W. Parrish of Philips Laboratories, and contained biographical information on 2240 crystallographers from 54 nations. At the proposal of Dr Parrish, it was discussed by the General Assembly in 1957 whether or not the Union should continue the project and publish new editions of the *Directory* at regular intervals. No decision was then made, however, and the matter was referred to the Executive Committee of the Union for further consideration and decision.

At its meeting in Leningrad last May, the Executive Committee accordingly discussed the matter again. As the *Directory* had proved to be very useful, it was decided that the Union should indeed publish a second edition, and that this edition should appear in time for the Fifth International Congress in Cambridge, August 1960. In order to distribute the heavy load which in 1956–1957 Dr Parrish and his assistants had taken on their shoulders, it was further agreed that, if possible, for each country the collection of the biographical information for the second edition should be carried out by a Sub-editor in that country. Questionnaires will therefore be distributed to crystallographers throughout the world by, and should be returned to, these Sub-editors this time.

It is intended to include in the *Directory* again all practising crystallographers, including advanced graduate students. As today crystallography is an essential part of many fundamental and applied scientific applications, it is quite difficult to give an exact statement what the qualifications of a person should be for inclusion. In many cases one should therefore judge for himself if he does enough crystallographic work to justify that his name be listed in the *Directory*, the term 'crystallographic' to be understood in its widest sense.

Readers of this notice whose names ought to be included in the *Directory* but who have not received a questionnaire by 1 November of the current year, are requested to write to the Secretary of their National Committee (see *Acta Cryst.* (1959), **12**, 616), or to the General Secretary of the Union, Dr D. W. Smits, Laboratory of Inorganic and Physical Chemistry, 10 Bloemsingel, Groningen, Netherlands.

Copies of the first edition are still available and can be obtained from the Polycrystal Book Service, G.P.O. Box 620, Brooklyn 1, N.Y., U.S.A., at the price of U.S. $1·50 per copy, postpaid, if payment accompanies order.

Pittsburgh Diffraction Conference

The annual Pittsburgh Diffraction Conference will be held November 11–13, 1959, at Mellon Institute, Pittsburgh, Pennsylvania. In addition to the usual sessions, plans are being made to devote sessions to stress analysis, refractories and silicates, and biological structures. A symposium on electron microprobe analysis is being arranged. The evening meeting will be addressed by Dr C. S. Barrett of the University of Chicago. Further information can be obtained from D. W. Beard, Crucible Steel Company of America, 234 Atwood Street, Pittsburgh 13, Pennsylvania.

The crystal structure of ceric iodate monohydrate

An error occurred in the paper of the above title (Ibers, *Acta Cryst.* **9**, 225 (1956)). In applying Cruickshank's method to the calculation of estimates of standard deviations of atomic parameters from the difference Fourier, the appropriate summation was carried out over unique, rather than over all reflections within the limiting sphere. To a very good approximation, then, the initial estimates are too small by a factor of two, the square-root of the multiplicity of a general reflection in $P2_1/n$. Hence, the correct estimates are $\sigma(\mathrm{Ce,I}=M)=0{\cdot}002$, $\sigma(\mathrm{O})=0{\cdot}028$ Å, leading to $\sigma(M\text{–O})=0{\cdot}028$, $\sigma(\mathrm{O\text{–}O})=0{\cdot}040$ Å. These estimates are now compatible with the least-squares estimates (Ibers & Cromer, *Acta Cryst.* **11**, 795 (1958)), and it is clear that the discussion given there to possible causes of discrepancies between standard deviations obtained from the least-squares procedure and from Cruickshank's method, though possibly of theoretical interest, is no longer germane to ceric iodate monohydrate.