of L-arabinose and methylamine, in absolute ethanol with anhydrous liquid hydrogen cyanide led to the ready crystallization of N-methyl-L-glucosaminic acid nitrile—m. p. 113°, $[\alpha]^{25}$ D −17.5° → −21° (50 min.) → −8.3° (final, water); pentacetate—m. p. 132–134°, $[\alpha]^{23}$ D −38° (chloroform). On hydrolysis of the nitrile with acid followed by base there was obtained, on acidification, N-methyl-L-glucosaminic acid—m. p. 236° (dec.), $[\alpha]^{24}$ D −4.6° (water). From the mother liquors of the nitrile there was isolated an amorphous product which on hydrolysis led to a crystalline acid now under further investigation.

Full details will be communicated at a later date.

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The Rh System in the Chimpanzee

A. S. Wiener and M. Wade (*Science*, 1945, **102**, 177) have shown that the erythrocytes of chimpanzees do not absorb the Rh agglutinins from the human antisera, anti-Rh_0, anti-Rh′, and anti-Rh″, but do absorb the agglutinin from the anti-Hr serum. As this parallels the behavior of the human Rh– cells, it is concluded that chimpanzees are Rh–.

A chimpanzee died recently in the Gardens of the Zoological Society of London, and through the kindness of Prof. E. Hindle and Col. A. E. Hamerton we were provided with a sample of the blood. Absorption tests with the chimpanzee blood were clear cut and confirmed the findings of Wiener and Wade; that is to say, in the language of Fisher's theory (cited by R. R. Race. *Nature, Lond.*, 1944, **153**, 771; R. A. Fisher and R. R. Race. *Nature, Lond.*, 1946, **157**, 48), anti-D, anti-C, and anti-E agglutinins were not absorbed, but anti-c was. We found, however, that the chimpanzee cells failed to absorb the anti-e agglutinin, recently discovered by one of us (A. E. Mourant. *Nature, Lond.*, 1945, **155**, 542).

The antigen e is present in double dose on human Rh– red cells, which strongly absorb anti-e. In terms of Fisher's theory the failure to absorb either anti-E or anti-e means that the chimpanzee possesses neither of the antigens determined by the E-e locus in man. Either the chimpanzee possesses a third antigen determined by the same locus or, more probably, the locus is absent altogether.

The apparent separability of this group of Rh antigens would seem to support Fisher's belief that they are, in fact, controlled by a separate locus.

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Misuse of the Linnaean System of Nomenclature

A. Byron Leonard (*Science*, 1946, **104**, 17) has recently criticized under this same heading certain nomenclatural usages of E. E. Dickerman and in doing so has himself so misused the Linnaean system of zoological nomenclature (as codified in the Règles Internationales de la Nomenclature Zoologique) that a protest is called for.

We have not examined Dr. Dickerman's paper, because the reference given by Dr. Leonard is so incomplete that previous knowledge is required to identify it. Since we are neither parasitologists nor helminthologists, we will not presume to discuss Dr. Dickerman's usage that is criticized by Dr. Leonard, but will merely comment on Dr. Leonard's conclusions from his stated premises.

In general terms, of course, Dr. Leonard is correct in his position that in Linnaean nomenclature all growth stages of a single species must be called by the same name for taxonomic purposes. Furthermore, the choice of names is governed by priority of publication and not at all by the ontogenetic stage named (Règles Internationales, Art. 27 and 28, not Art. 26 as stated by Leonard). But the reasoning by which Dr. Leonard arrives at a conclusion that is correct in general terms (whether these terms are applicable to Dr. Dickerman's usage or not) is erroneous. In the first place, Dr. Leonard seems to assume that the names *Cercaria* and *Proterometra* were both proposed by Dickerman as new generic names, for he argues that priority between them could be determined by page precedence in Dickerman's work. This is far from being true, for *Cercaria* was first published by Mueller in 1773 and *Proterometra* by Horsfall in 1933 (A. S. Neave. *Nomenclator Zoologicus*, 1940). Furthermore, Dr. Leonard would have realized that the question of priority must have been settled long ago unless he had thought that the names were newly proposed. Priority of publication, not page precedence, would require that *Cercaria* be employed, unless the Règles were suspended by a special act of the International Commission or unless there was some other special circumstance. For example, there is some outside evidence that helminthologists in general, and probably Dr. Dickerman, do not regard *Cercaria* as the name of a genus but of a collective group treated for convenience as if it were a genus (see Art. 8 of the Règles). If this were the case, there might be no nomenclatural conflict, since only one of these names would be available as a generic name under the Règles.

But let us pass this over and assume that both names did originate in Dickerman's paper of 1945 as Dr. Leonard seems to believe, or at least that different growth stages of the same species were called for the first time variously *Cercaria sagittaria* Dickerman (p. 37) and *Proterometra sagittaria* Dickerman (p. 39). Dr. Leonard argues that by virtue of page precedence *Cercaria sagittaria* Dickerman is the "correct name" for the species described. This is fallacious, and it is this argument by Dr. Leonard to which we wish to take vigorous exception. It is particularly important to protest this because of the widespread misapprehension on the subject that probably stems from the fact that page precedence was an important criterion in several other codes of nomenclature long ago superseded by the Règles Internationales.

In the Règles, the code under which zoologists have operated for about 50 years and which Dr. Leonard undoubtedly thinks is the authority for his position, page precedence has no role at all for determining priority

and an extremely minor role for any other purpose. (The version of the code to which Dr. Leonard refers is a very useful unofficial publication of the present official English translation of the definitive French text of the Règles. This translation is known to be defective on some points, and a new official translation is in preparation by the Commission.) It is a criterion for precedence (not priority) between simultaneous names under Recommendation C of Article 28, and for the selection of the type species of a genus under Recommendation t of Article 30. In both it is the last and least significant criterion listed, to be employed only when other things are equal. But recommendations are not articles of the Règles. They indicate preferred, not required, procedure. Priority is determined solely by the date of publication. All parts of a work issued at the same time bear the same date and for purposes of priority are simultaneous. If both names are equally valid, a choice between two synonymous names published simultaneously rests with the first writer to reconsider the point, and thus again priority is a matter of publication date. The revising author may or may not have based his choice on page precedence. It makes not the slightest difference.

The other questions raised here concerning Dr. Leonard's criticisms of Dr. Dickerman's usage must be examined in the light of helminthological taxonomy, but the conclusions of Dr. Leonard appear to us to be far from demonstrated by the evidence he presents.

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Inhibition of Surface Growth

Preserved and embalmed material, including museum specimens, may be attacked superficially by highly resistant organisms. Multiplication and growth of these is of common occurrence both with dry embalmed comparative anatomy specimens and cadavers used in the study of human anatomy. Two chemical inhibitors have been used in our laboratory which are effective in preventing or stopping surface growth. Roccal (a commercial preparation sold by the Winthrop Chemical Company, New York City, to which acknowledgment is due and defined by the maker as a mixture "of high molecular alkyl-dimethyl-benzyl ammonium chlorides") is added to fluid supplied to students for wetting the wrappings of their dissection material. Roccal (commercial grade) is used in concentration of 1: 100 of the usual phenol-formalin dilutions. (The additional cost is approximately $.04 per gallon.)

Similarly, sodium azide in a concentration of 0.1 per cent will usually inhibit all growth. This is more concentrated than that which has been used in agar-plate tests (J. D. Kempf and W. J. Nungester. *Science*, 1944, **100**, 411–412). Sodium azide, 0.1 per cent, is more expensive ($.20 additional per gallon).

Especially resistant surface growth has been stopped by increasing concentration of sodium azide to 0.5 per cent, or of Roccal to 1: 50, and sponging the surface with either solution. No attempt has been made to use either chemical in vats or embalming fluid, since our problem has been one of the dissecting room or laboratory.

There seems to be a personal factor involved in their effective use. This is related to care in sponging off infested areas as well as degree of wetness of cloths used to keep specimens from drying. Students tend to keep their material sopping wet, which encourages growth of molds even on the cloths. All coverings should be twisted or wrung out by hand until the fluid no longer flows freely.

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Book Reviews

Structural inorganic chemistry. A. F. Wells. Oxford, Engl.: Clarendon Press, 1945. Pp. viii + 590. (Illustrated.) $7.50.

In the Introduction the author says: "The study of the solid state has greatly increased our knowledge of the different types of chemical bonds." He also states that one not only wishes to know the general preparative methods but also asks ". . . about a compound . . . what is it made of, what holds the constituent parts together, and how are they arranged?"

Much of the material with which the author deals is now being studied in the new subdivision of chemistry called "crystal chemistry." It is amazing that he has been able, during the strain of the past few years, to review and correlate the tremendous mass of information found in this book. An idea of the scope of the work may be obtained from the following list of topics: I. The Structure of the Atom; II. Forces Between Atoms; III. Spatial Arrangement of Atoms; IV. The states of Aggregation; V. The Crystalline State; VI. The Experimental Methods of Structural Chemistry; VII. Hydrogen; VIII. The Halogens; IX, X, and XI. Oxygen and Sulfur; XII. Nitrogen and Phosphorus; XIII. Carbon; XIV. Silicon; XV. Boron; XVI. Stereochemistry of Certain Metals; and XVII. Metals and Alloys.

Since there are so many more metallic than nonmetallic elements, the method of arrangement of the material by the author lends itself to better correlation of information. The various types of bonding involved in the solid state and the hypotheses and theories proposed to explain