Numbering System for Moon Samples

Numbers are assigned to the lunar samples in the Lunar Receiving Laboratory (LRL) as soon as the samples have been photographed. The numbers have two parts: the generic, or first part, and the specific, or second part. The generic number is a 5-digit number assigned to each discrete piece as it is received; it remains with all portions of that piece. The generic numbers for Apollo 11 rocks are all in the 10-thousand series; those for Apollo 12 are in the 12-thousand series.

The specific number is a sequentially assigned integer used primarily for bookkeeping and is essentially the number used to designate a piece or fraction of the original sample. It is essentially a sample split number. Thus, if the piece labeled 10017,14 were cut into three pieces, the new pieces might be labeled 10017,72; 10017,73; and 10017,74 if these were the next unassigned numbers. Number 10017,14 would no longer be assigned to a piece, and the records would indicate that the piece was cut into smaller pieces.

The investigators who have received lunar material have used their own nomenclature for subsplits, producing a three-part number. The third part is the identification assigned by a particular investigator. The third part of the number is attached to the LRL number by any convenient punctuation. Some investigators have used dashes, others have used commas, slashes, or periods. In papers in this issue, some authors have omitted the first three digits of the generic number. Thus, an investigator working with a subsplit of 10017,72 may have designated it 10017,72-1 and may refer to it as 17,7201 or 17,72/1, or simply as 72-1. When the samples are returned to the Lunar Receiving Laboratory, new specific numbers will be assigned to the subsplits, yielding two-part numbers again.

In addition to specific numbers, samples are also identified by letters that indicate the type of material. Type A is fine-grained vesicular crystalline igneous rock; type B, medium-grained vuggy crystalline rock; type C, breccia; and type D, fines.

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Acknowledgments

Publication of this issue of *Science* was accomplished with the help of many persons who are not members of the editorial staff. Wilmot Hess was instrumental in developing the broad outlines of the publication procedures that were ultimately adopted for the Apollo 11 Lunar Science Conference by NASA. After his departure from NASA, Gene Simmons and Anthony J. Calio helped complete the detailed arrangements.

The publication plan developed by the *Science* staff within this framework called for reviewing, editing, and revision of papers during the period of the conference. The results of the effort are shown in Table 1. Refereeing was accomplished by a group of 50 conference participants, who provided more than 250 reviews in less than 4 days. Authors whose papers required revision were called in to discuss the revisions with the referee; revisions were completed before the end of the conference. Reviewing was facilitated by the work of six reviewers who also served as topic chairmen: Stanley Hart and George R. Tilton, geochronology and geochemistry; Ian MacGregor and David Wones, mineralogy and petrology; David Strangway, physical properties; and Thomas Hoering, organic geochemistry. The chairmen enlisted additional reviewers, who were invited to look over the manuscripts grouped on a table by subject and take their pick. These additional reviewers were John B. Adams, Edward Anders, Orson Anderson, James A. Arnold, Gustaf Arrhenius, Elso Barghoorn, Peter M. Bell, Francis R. Boyd, Malcolm Campbell, Preston Cloud, Alvin J. Cohen, Herbert Diamond, Geoffrey Eglinton, Samuel Epstein, Larry W. Finger, Kurt Fredriksson, Clifford Frondel, G. F. J. Garlick, Paul Gast, J. E. Geake, Gordon Goles, Stefan Hafner, Stephen Haggerty, Larry A. Haskin, C. E. Helsley, H. Kanamori, Donald H. Lindsley, Warren Meinschein, Arnulf Muan, John A. O'Keefe, Robert O. Pepin, Dean Presnall, K. A. Richardson, James M. Schopf, S. Fred Singer, Joseph V. Smith, D. Tozer, Robert M. Walker, Louis S. Walter, G. J. Wasserburg, G. W. Wetherill, M. T. Yates, and Leonard P. Zill.

All papers submitted were screened for editorial problems during the conference, and editing was completed on a third of them. Authors were invited to examine the edited manuscripts and make changes if they wished to do so before the end of the conference.

Eleven members of the editorial staff worked in Houston. They were joined

Table 1. Dates of start and finish of each step in the publication of the Apollo 11 Lunar Science Conference issue of *Science*.

Step	Dates
Receipt of manuscripts from authors	4– 7 January
Reviewing of manuscripts	4– 8 January
Authors' responses to reviews	5– 8 January
Style editing and marking for printer	5–12 January
Redrafting and relettering illustrations	5–12 January
Authors' responses to style editing	5–23 January
Preparation of engravings	8–22 January
Typesetting	9–19 January
Proofreading of galley proofs	10–19 January
Pasteup of page dummies	13–20 January
Correction of galleys and makeup of pages	13–21 January
Proofreading of page proofs	17–24 January
Correction of pages	20–26 January
Proofreading of revised page proofs	21–27 January
Printing	23–28 January
Binding	28–30 January
Mailing	28–31 January

by Mary Jane Miles and Rowena Peoples for editing and by Kathleen Blake for manuscript tracking. Earl Rubenstein and John Harris of the Manned Spacecraft Center arranged for plentiful space for editing and refereeing, and with the assistance of Roy Magin and Stanley Jacobsen they quickly provided typists, copying machines, pencil sharpeners, dictionaries, draftsmen, photography, and other equipment and services whenever required.

The editing begun in Houston was finished in Washington with help for the staff from Murrie Burgan, Mary Eichhorn, Marcus Hairstone, Eleanor Johnson, Jerold Last, Helen Olney, Rowena Peoples, Stephen Petropulos, Horace Porter, Mary Porter, and Lucile Stryker. Proofreading help was provided by all these and by Helen Carter, Wanda Jenkins, Mary Ann Ormes, Barbara Porter, Iris Sexter, Diane Tremitiere, and Helen Wolfle.

Others who helped in various tasks from keeping track of manuscripts to mailing them at the post office and keeping the building open after regular hours were Shirley Bain, Kathleen Blake, Janet Bragg, Carol Brown, Mattie Fauntroy, Mattie Gardner, Elma Goss, Fannie Groom, Veronica Groom, Rose Lowery, Faye Lynch, Allan Sims, Isaac Smalls, Ethel Smith, James Stickley, James Walke, Albert Wright, and Marion Zeiger.

The front cover was designed by James White who based his work on a picture provided by Kurt Fredriksson and E. P. Henderson. The illustrations on page 451, left to right, were provided by E. C. T. Chao, Paul W. Gast, and Robert L. Fleischer.

The work of typesetting, page make up, printing, binding, and mailing was arranged for or done by:

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JOHN E. RINGLE, ROBERT V. ORMES

List of Abbreviations

The explanations are those supplied by the authors of the papers in this issue.

-a combining form for ampere, as μa (microampere).
A artificial glow curve area
Å angstrom unit; 10^{-8} centimeter
a_o unit-cell *a* parameter
A_r *usu ital:* angle of rotation
AA atomic absorption
AA activation analysis
Ab albite ($NaAlSi_3O_8$)
a-c alternating current
AE aeon; 10^9 years
A.E.I. Associated Electrical Industries
AF alternating field
Ag silver
alk. alkalic
Allende Pueblito de Allende
Al aluminum
amp ampere
amu atomic mass unit
An anorthite ($CaAl_2Si_2O_8$)
An_{100}, anorthite molecule content of 100 percent
Ap apatite [$Ca_5(PO_4)_3(OH,F,Cl)$]
Ar argon
atm atmosphere
Au gold
A.U. astronomical unit
AVCC average carbonaceous chondrite composition
AWRE atomic weapon research establishment

b *usu ital:* mean diffusion lengths
b_o *usu ital b:* unit-cell *b* parameter
Ba barium
Be beryllium
Bi bismuth
Br bromine
b.y. billion years; 10^9 years

c* *usu ital:* reciprocal *c* axis
°C degrees Celsius
c_o *usu ital c:* unit-cell *c* parameter
C2/c *usu ital C, c:* space group
Ca calcium
ca about
cal calorie
cc cubic centimeter
ccSTP/g cubic centimeters at standard temperature and pressure per gram
cm^3 STP/g *ibid.*
cm^3/g(STP) *ibid.*
ccstp/g *ibid*
cstp *ibid.*
Cd cadmium
CEC Consolidated Electrodynamics Corporation
Chr chromite ($FeCr_2O_4$)
CIPW norm system, from initials of the originators, Cross, Iddings, Pirsson, and Washington
C.I.T. California Institute of Technology
Cl chlorine
class 100 room particle (> 5 μm) count less than 100 per cubic foot of air
Cm curium
cm centimeter
cm^3 cubic centimeter
Co cobalt
count/min counts per minute
c_p *usu ital c:* specific heat
cph counts per hour
cpm counts per minute
Cr chromium
Cr cristobalite (SiO_2)
Cs cesium
Cu copper

d day
d *usu ital:* particle diameter
d *usu ital:* density; for example, g/cm^3
D deuterium
$d^4(t_{2g})^3(e_g)^1$ *usu ital d, e, g, t:* Group notation for high spin state Cr^{2+}, indicates an odd number of electrons in the e_g orbitals
d-c direct current
de *usu ital:* energy per unit area and unit time
Di diopside ($CaMgSi_2O_6$)
dph distintegrations per hour
dpm/kg disintegrations per minute per kilogram

E *usu ital:* activation energy
E emission spectrography
EASEP Early Apollo Scientific Experiments Package
emu electromagnetic units
emu/g electromagnetic units per gram
EMX electron microprobe x-ray analysis
En enstatite ($MgSiO_3$)
En_{70} enstatite molecule content of 70 percent
EOB end of bombardment
EPR electron paramagnetic resonance
Eu europium
EVA extravehicular activity

F fluorine
Fa fayalite (Fe_2SiO_4)
Fe iron
f_{H_2O} *usu ital f:* fugacity of water
FID flame ionization detector
f_{O_2} *usu ital f:* fugacity of oxygen