Techniques in Classifying Beads Recovered from Archaeological Sites

— *Rey A. Santiago*[1]

Introduction

This paper demonstrates a technique in making a typological system for classifying and observing beads recovered from archaeological sites. It presents, in the simplest manner, the basic procedures for identifying bead types through physical analysis. As such, it serves as the initial preparation for bead classification and chronology. It is also felt that the need to establish a reference type collection for archaeological beads from Southeast Asia is timely, so that each country can easily exchange information and have a clearer view of all bead types in existence. This paper also includes the techniques for preparing a typological collection of bead types which will serve as reference for future research work.

Every bead has its own interesting life story from its period of manufacture, distribution and utilization to its time of deposition into the archaeological site. Every event in the bead's history, whether technological or cultural in nature, when properly identified, organized and set into its chronological order, provides a broad range of profound historical information.

The typological reference of bead types can provide researchers with a greater advantage in grouping beads according to their significant attributes. This can then be classified and compared to determine characteristics of their respective archaeological assemblage. When bead types have been set, further examples can be described simply by reference to already recognized types. Bead type can then be further subjected to classification and comparative study.

Bead Typology

The study of a bead's physical configuration and characteristics is the key to bead typology. The bead material, color, decorations, shapes and dimensions and

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method of manufacture are the basic physical attributes that may be observed and recognized to identify types (see Figures 1-2). For archaeology, the study of bead types has two primary objectives. First is for classification, which explains how beads may be grouped according to common significant features, or characteristics which may provide information about the beads' geographical origin or from which cultural period the bead belongs. The distribution of the bead types in space and time is the initial concern of the researcher when classifying bead types. Hence, beads from the sites should be properly analyzed and recorded in terms of their archaeological context and possible function. Bead relationships with other artifactual remains in the assemblage must be observed before recovering them from the site. Dating of the beads as to when they were utilized or deposited into the site should be obtained either by stratigraphy or any other dating method for future chronological determination. When bead types represented by their physical characteristics are set against their time of manufacture or period of their distribution and utilization, this may form a classified chronology of bead history. Beads with known provenance can be classified according to their geographical origin. So far, this kind of classification is the most useful for its profound evidential attributes. Beads, of unknown place of manufacture, can be classified based on their place and period of utilization (cultural period). This was found effective in setting up local chronologies of artifactual assemblages.

Secondly, bead typology can be utilized for the comparative study of different bead types to find out which are more closely or distantly related. The relationships between similar types can sometimes be shown not merely to classify, but also to explain their development through time. Once the variation in a particular bead group or type series has been classified by typology, it can be shown that the beads fall into a developmental series, forming a single line or sometimes branching lines similar to that of a family tree. This may also show increasing complexity on quality improvement, and modification on both artistic and technological trends. This process is also applicable to bead assemblages: to come up with an observation explaining some cultural traits and characteristic variations based on bead type formation. Such comparative studies need to be determined also by other artifactual or ecological facts to obtain dating in order to fix the rate of change.

Other types of beads like glass, metals, clay and stones can be subjected to chemical analysis to obtain a more precise and finer typology for classification.

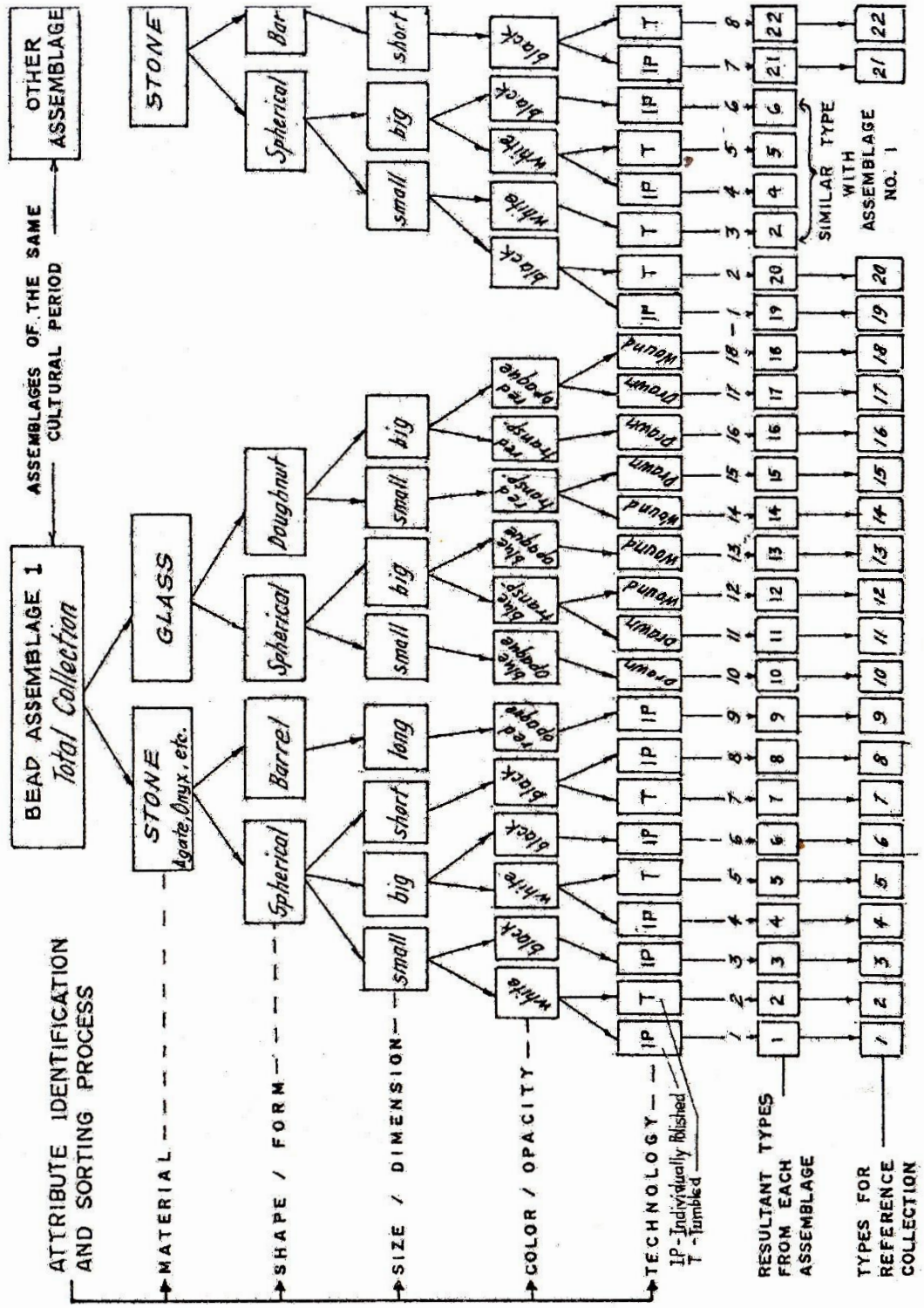

Figure 1
A flowchart showing the process of identifying types from its physical attributes

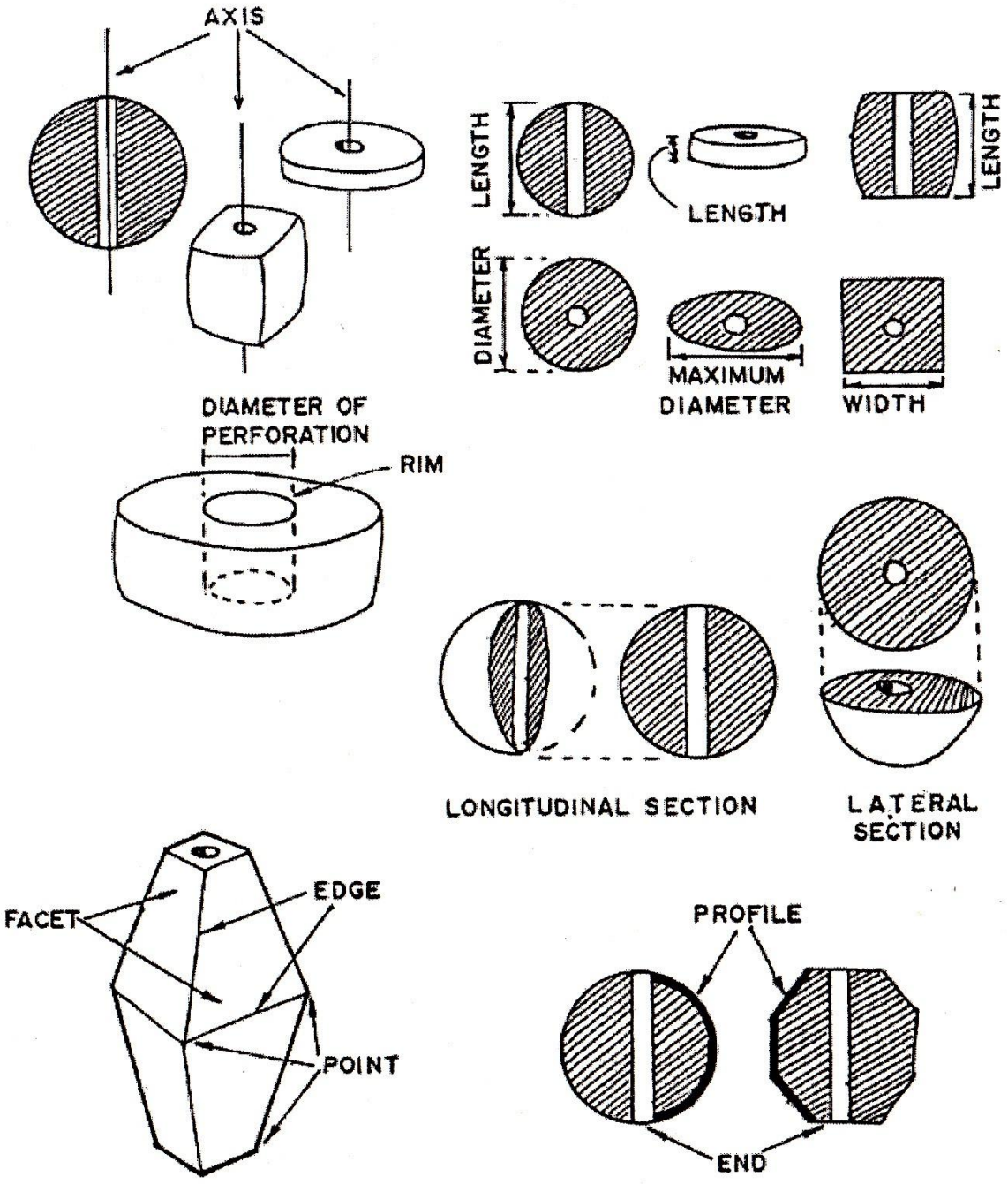

Figure 2
Some general terms for bead description

Basic Procedures in Classifying Beads for Typology

Before starting any laboratory process in analyzing beads, the researcher should see to it that the artifacts have sufficient and proper contextual records. This is because the resulting types of the beads in this typological process will serve as a permanent index and a reference type collection of a nation. Quality collections are those that possess quality information.

The following typological procedures can be applied to either archaeological or modern beads. However, in this demonstration, the discussion focuses on archaeological beads.

A. *Identification of Types*

Beads are usually recognized and valued according to their physical forms and quality. These are the same criteria used in selecting types for typology. These are the beads' physical attributes such as material, color, decoration, shape and dimension and method of manufacture. In addition, these are the same imaginary elements in the mental template of bead makers, who manipulate these elements in their mind before a technological approach in the production is expressed. So, the attitude of bead makers toward bead manufacture is reflected in those attributes which can be observed in the process of identifying bead types. Refer to Figure 1 and follow the flowchart after collecting all the beads to be subjected to typology.

B. *Typological Analysis*

The "Bead Analysis Form" (Appendix A) should be designed and provided for every bead type identified. See the attached sample of the form used in the Philippines, which can be modified further to satisfy other research requirements.

Each attribute is analyzed and recorded in the analysis form using the following procedures:

a) Bead material should be carefully identified by a bead expert or specialist working on similar materials such as a glass expert for glass beads (Appendix B), mineralogist or gemologist for stones, botanist or osteologist for organic materials and metallurgist for metals.

b) Munsell Color Chart for opaque materials is preferable for color notation. However, for translucent and transparent materials, or in the absence of color chart, general judgment using color terms can also be applied.
c) The H.C. BECK 1928 standard Terms for Bead Shape and Form can still be utilized for bead shape description.
d) A Vernier Caliper is precise in measuring bead dimension and size of perforation.
e) Microscopic examination of bead surface features can be observed under a stereoscopic dissecting microscope with a 10X magnification. This is to determine the possible mode of bead manufacture and other technological and cultural evidences.
f) Mode of Decoration can be described according to its total configuration, style and techniques of application.

Bead researchers should use a standard system in describing beads to avoid confusion. This is because beads have great varieties of types and people have different ways of understanding things. To date (see Francis 2002), many works have been done on bead nomenclature, which can be utilized for this purpose.

C. *Type Coding*

Each bead type must have its own type code different from archaeological accession code. This can be designed according to bead classification. In the Philippines, Bead Type Reference Collection Code was derived from the cultural periods when beads were utilized.

Example: 1-NE (Bead Type No. 1- Early Neolithic)

The writer finds this coding system simple and comprehensible, especially when analyzing materials within the Philippine context.

D. *Bead Type Reference Collection*

All the data gathered during the analysis must be properly recorded in the Bead Analysis Form. These forms will serve as the bead Data Bank or the Type Kit. The consolidations of the Bead Type Sample with its corresponding Type Kit, plus the photograph or illustration of every bead type, form the Bead Type Reference

Collection. A bead of two or three samples for every type would be sufficient for a start. However, it is better to have more in case a sample will be subjected to destructive chemical analysis, or for security reason, two sets of reference collection could be constructed.

Future Prospects

The methods and procedures presented above should be modified further according to the orientation of the research and needs of archaeology. For example, each member country of Southeast Asia, possibly through regional organizations such as SPAFA[2] and IPPA,[3] should have a bead type reference collection, both from archaeological and ethnographic collections. Standardization of terms and procedures in describing beads should be organized, possibly through a consultative workshop, to enable Southeast Asian countries to compare their collections in a less complicated manner.

[2] SEAMEO Regional Centre for Archaeology and Fine Arts; SEAMEO – Southeast Asian Ministers of Education Organization.

[3] Indo-Pacific Prehistory Association.

Appendix A
Bead Analysis Form Sample

Archaeology Division
National Museum, Philippines

Studied by_____
Date_____

1. Specimen Code no. _____
2. Archaeological Context and Associations: _____
   _____
   _____
   _____
3. Typological Code No.: _____
4. Plate No. of Color Illustration: (see colored plates of Philippine Bead Type Collections)

PHYSICAL ANALYSIS

5. Material: _____
6. Shape: _____
7. Size: Length Parallel to Hole: _____

Greatest Diameter or Width: _____
Diameter of Hole: _____
Diameter and Length Ratio: _____

8. Specific Gravity: _____
9. Color (Munsell Color Code): _____
10. Physical Condition (Patina, Erosion, Fracture, etc.):_____
    _____
11. Surface Binocular Examination: _____

(Drawing of the Observation)

METHOD OF MANUFACTURE

12. Surface Striation Direction(s): _____
    _____
    _____

13. Rim of Bore or Hole:

    (a) Sharp corner

    (b) Smoothed-in

    (c) Fractured or spalled

    (d) Others

14. Shape of Outside Diameter:

    (a) Spherical

    (b) Square with Rounded Edge

    (c) Oval

    (d) Others

15. Degree of Refining and Melting (gaseous and solid inclusion for plastic and glass beads): _____

16. Probable Method of Manufacture: _____

17. Class Designation of Basic Technique of Method of Manufacture: _____

ARCHAEOLOGICAL ANALYSIS

18. Type Site of Bead Type: _____
19. Other Philippine Site with this Type: _____
20. Description of the Bead Assemblage: _____
21. Dating: _____
22. Place of Manufacture: _____
    Port of Trade: _____
23. Ethnography/Historical Data about the Bead Type: _____

Appendix B
Chemical Analysis for Glass Beads

CONSTITUENTS	PERCENT
SiO_2 – Silica or Silicon Dioxide	_____
Na_2O – Sodium Oxide	_____
K_2O – Potassium Oxide	_____
CaO – Calcium Oxide	_____
MgO – Magnesium Oxide	_____
Al_2O_3 – Alumina or Aluminum Oxide	_____
Fe_2O_3 – Ironic Oxide or Hematite	_____
MnO – Manganous Oxide	_____
Sb_2O_5 – Antimonic Oxide	_____
PbO – Plumbous Oxide	_____
CuO – Cupric Oxide	_____
CoO – Cobaltous Oxide	_____
TiO_2 – Titanium Dioxide	_____
SnO_2 – Stannic Oxide	_____
B_2O_3 – Baron Oxide	_____
BaO – Barium Oxide	_____
SrO – Strontum Oxide	_____
Li_2O – Lithium Oxide	_____
Rb_2O – Rubidium Oxide	_____
V_2O_5 – Vanadium Pentoxide	_____
Cr2O3 – Chronic Trioxide	_____
NiO – Nickelous Oxide	_____
ZnO – Zinc Oxide	_____
ZrO – Zirconyl	_____
Ag_2O – Silver Oxide	_____
Bi_2O_3 – Bismuth Trioxide	_____
P_2O_5 – Phosphorous Pentoxide	_____
CI – Carbon Monodide	_____

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[4] With the assistance of Jun Cayron, a University Research Associate I of the Archaeological Studies Program whose masters thesis was on beads.

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Bead Types from Philippine Archaeological Sites

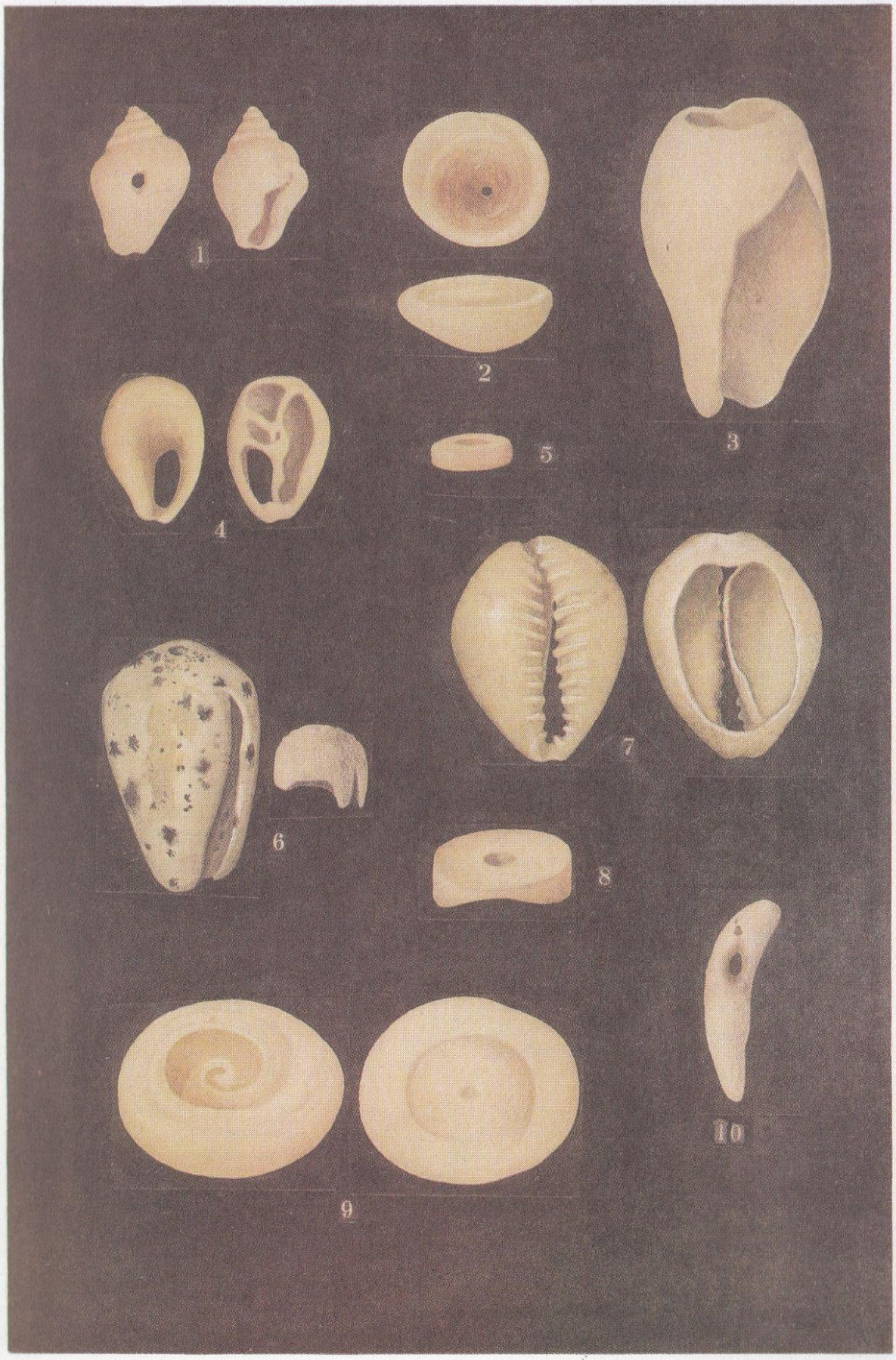

Plate A
Late Neolithic Beads of Shell and Teeth: Size x2

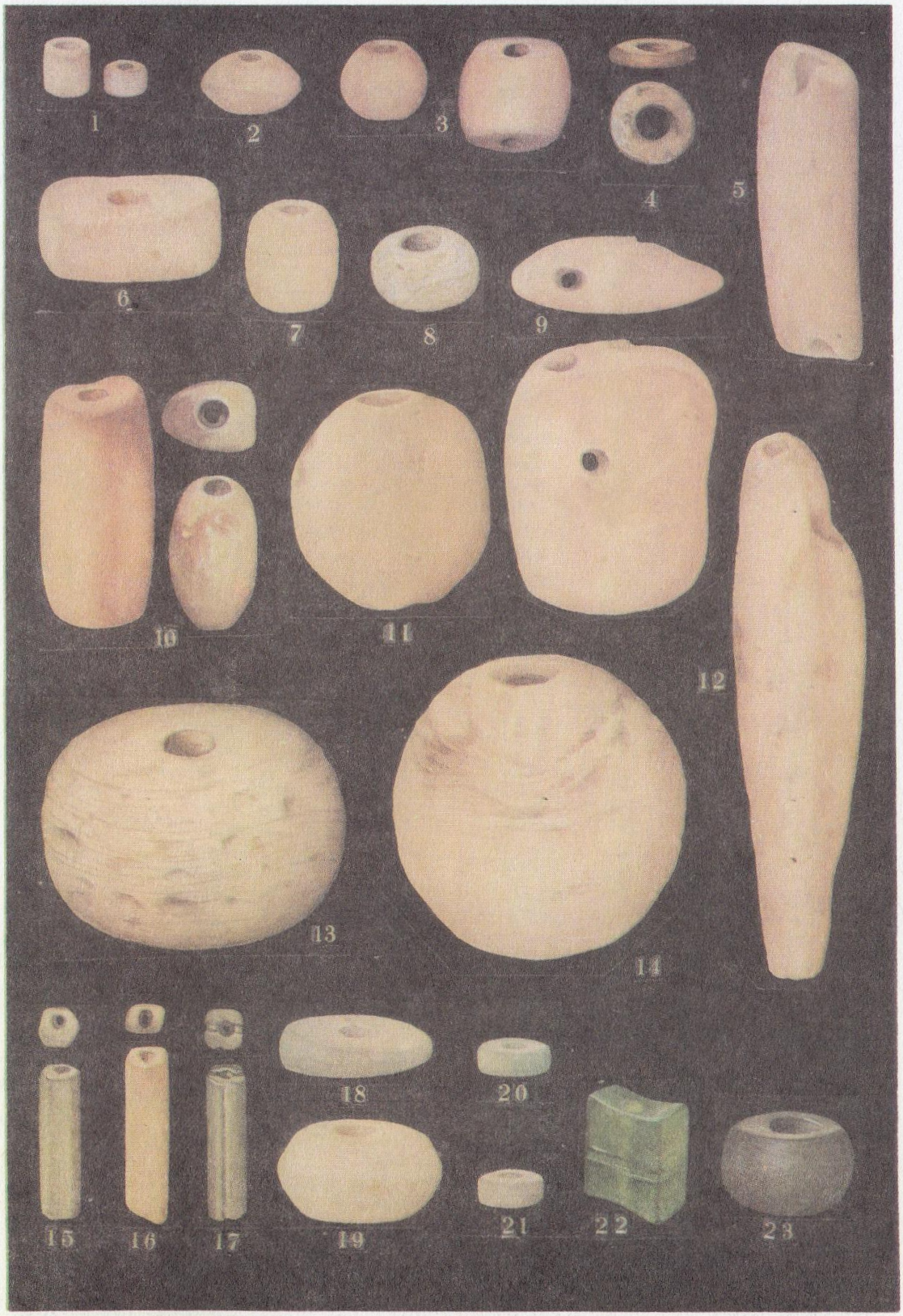

Plate B
Late Neolithic Beads of Shell and Stone

Plate C
Early Metal Age Beads

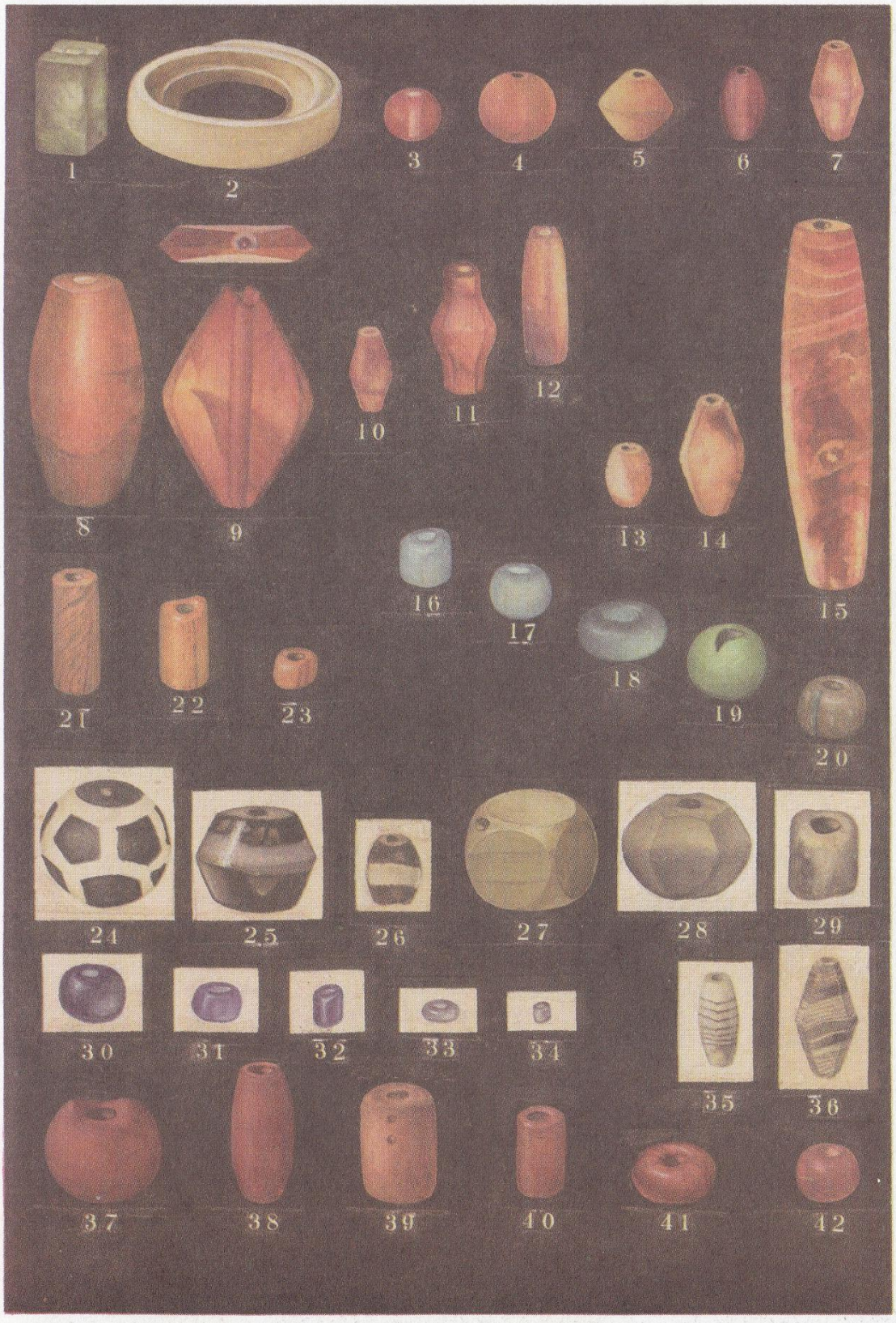

Plate D
Developed Metal Age Beads

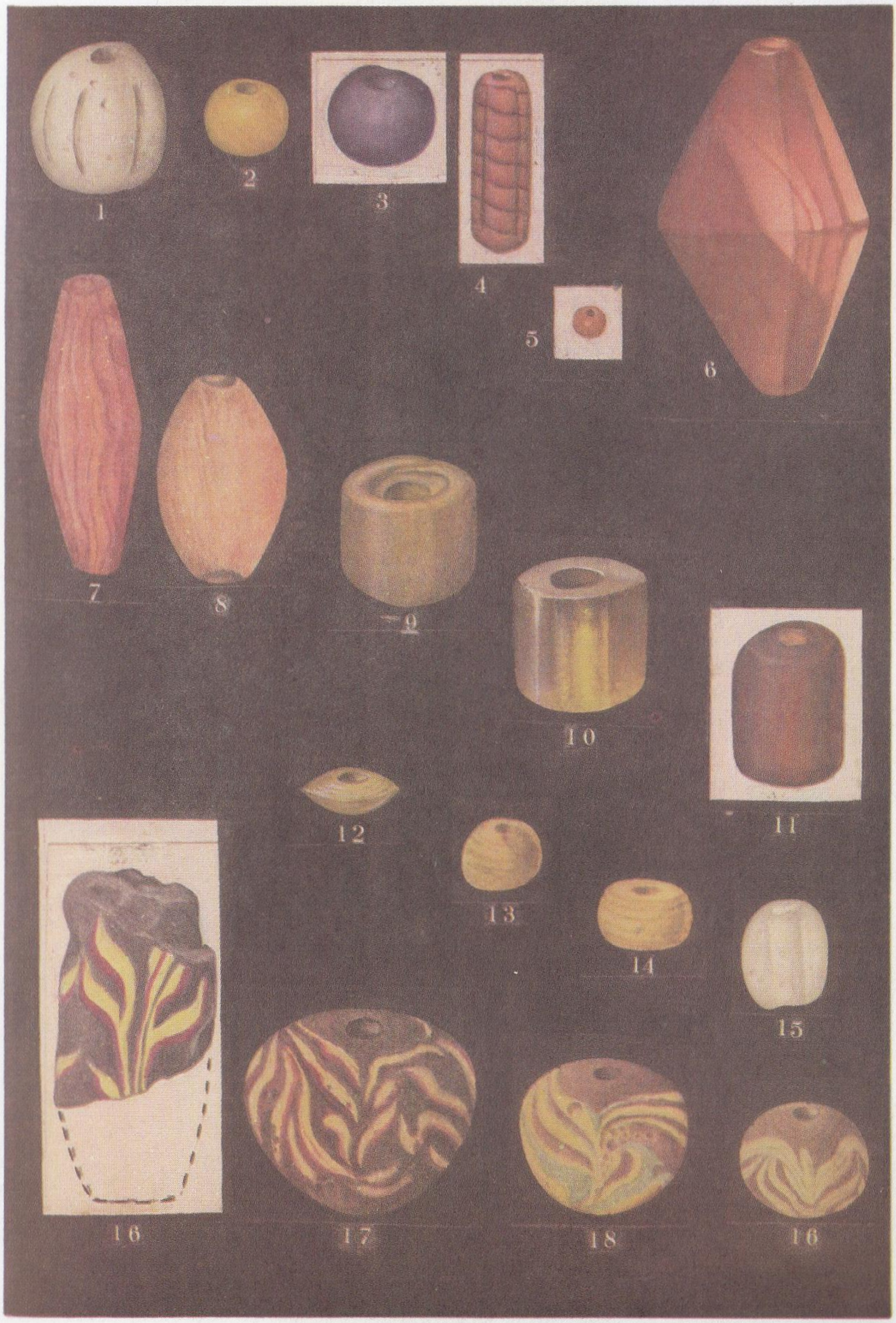

Plate E
Beads of the Age of Contacts and Trade with the East: Early Phase

Plate F
Beads of the Age of Contacts and Trade with the East: Middle Phase

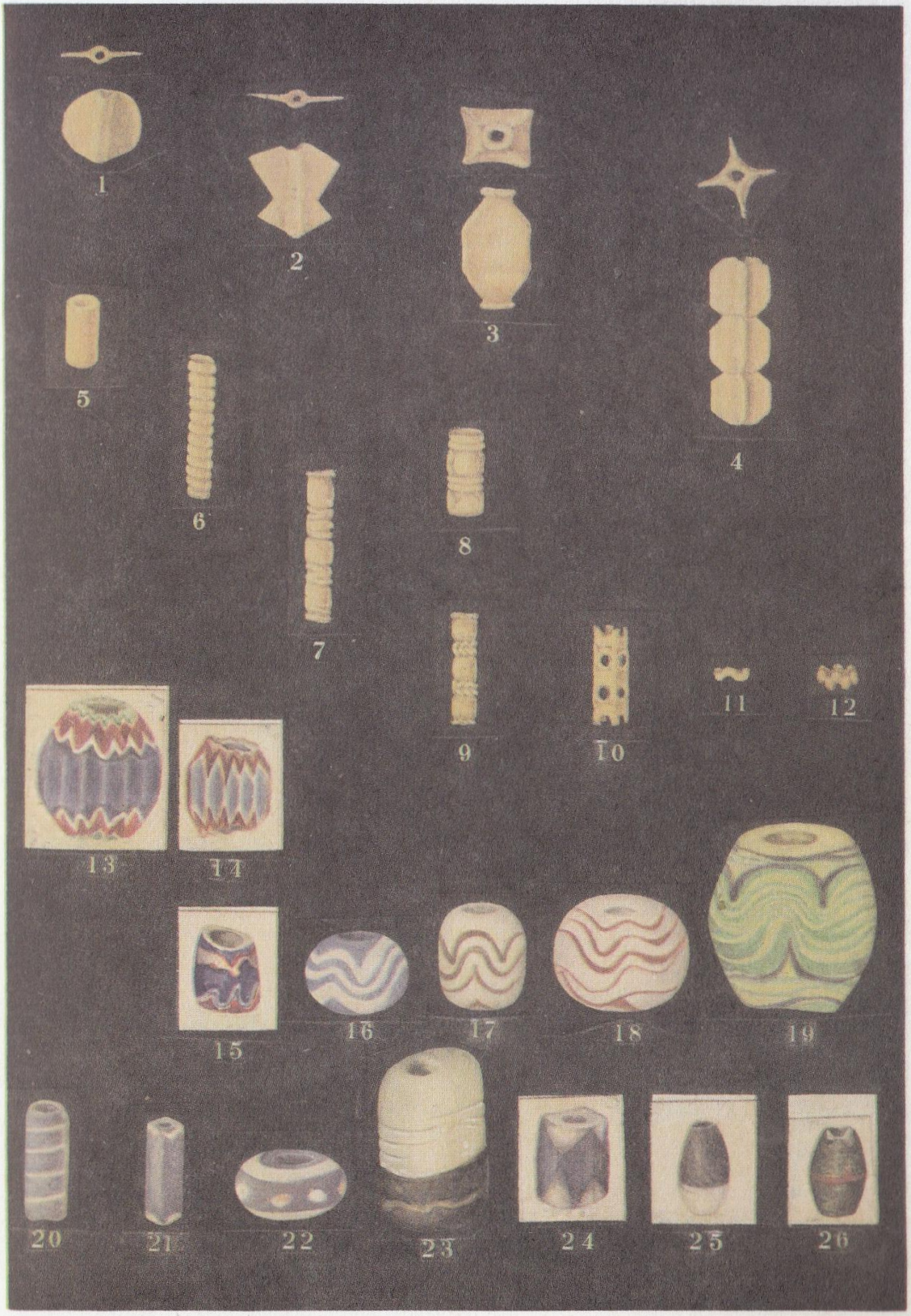

Plate G
Gold and Polychrome Glass Beads of the Age of Contacts and Trade with the East: Late Phase

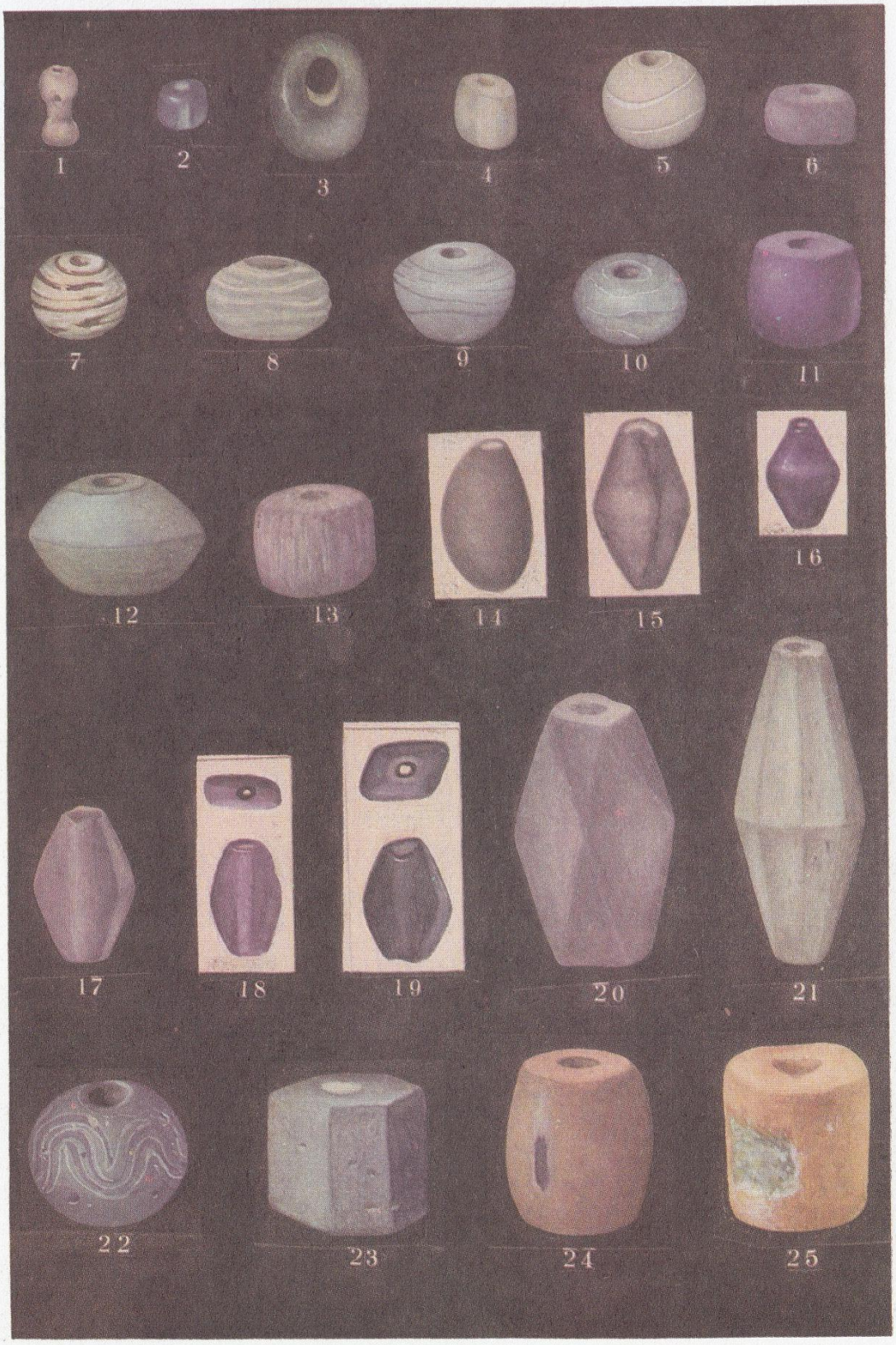

Plate H
Blue Glass Beads of the Age of Contacts and Trade with the East: Late Phase

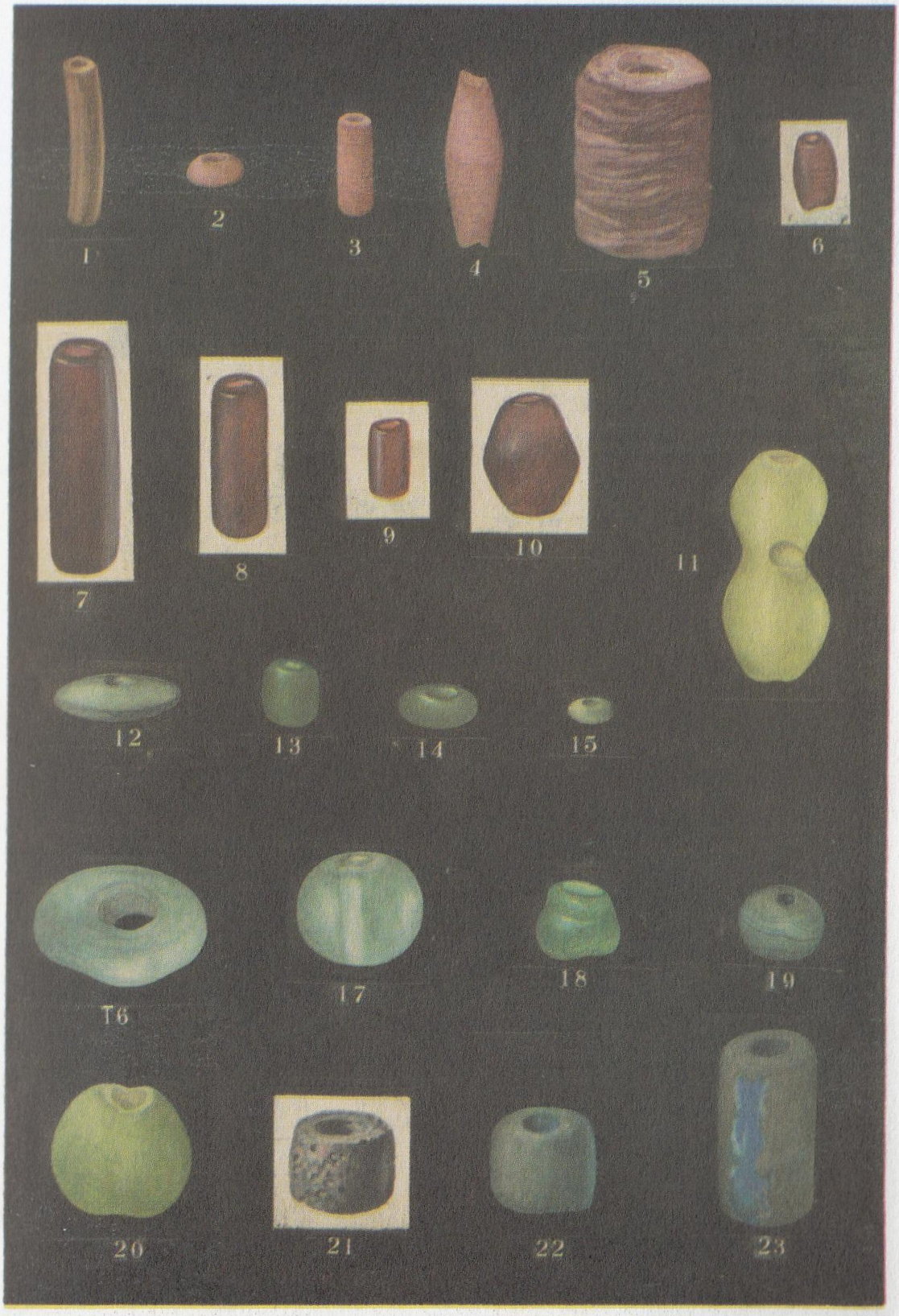

Plate I
Red, Green, and Blue Glass Beads of the Age of Contacts and Trade with the East: Late Phase

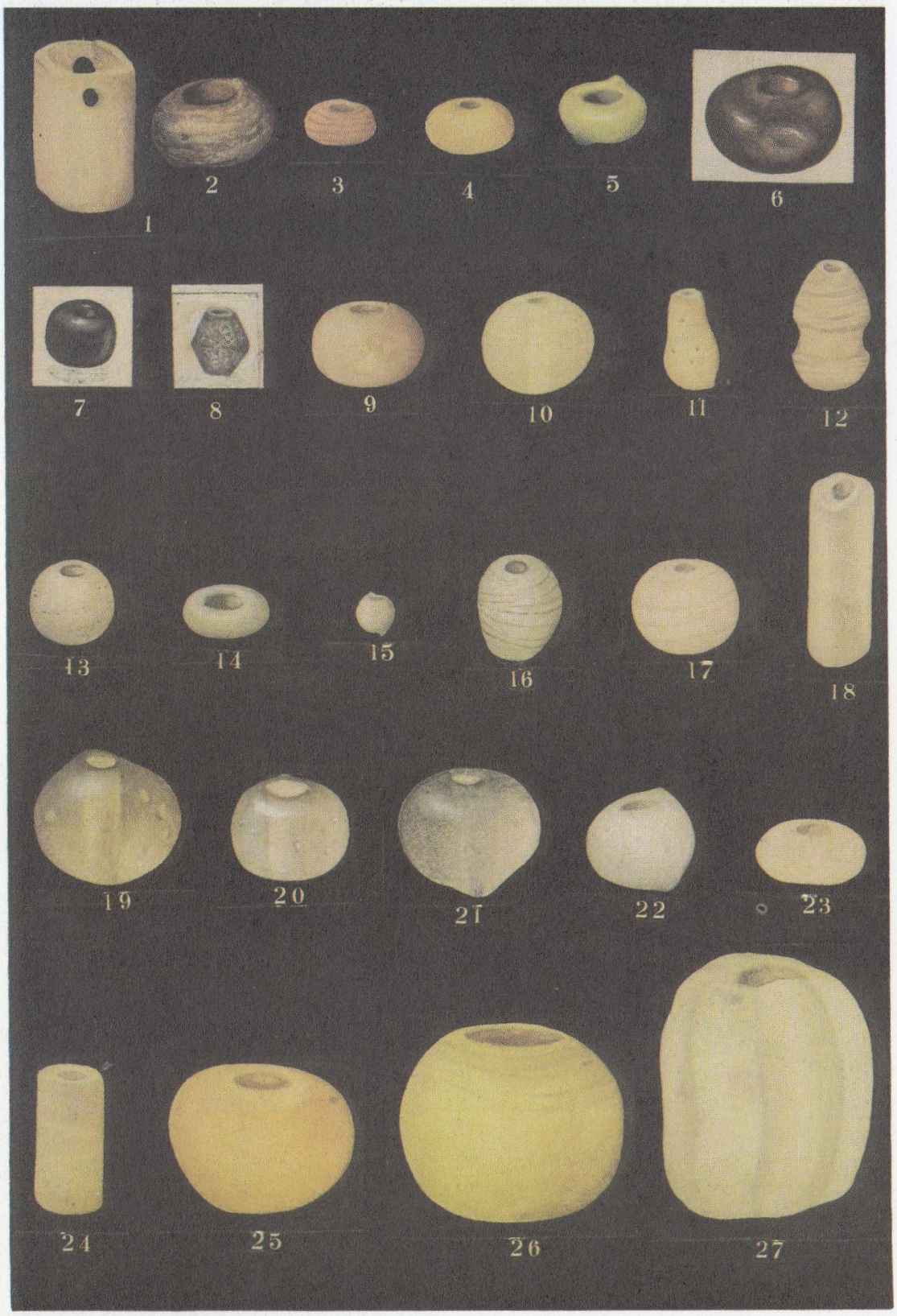

Plate J
Glass and Bone Beads of the Age of Contacts and Trade with the East: Late Phase

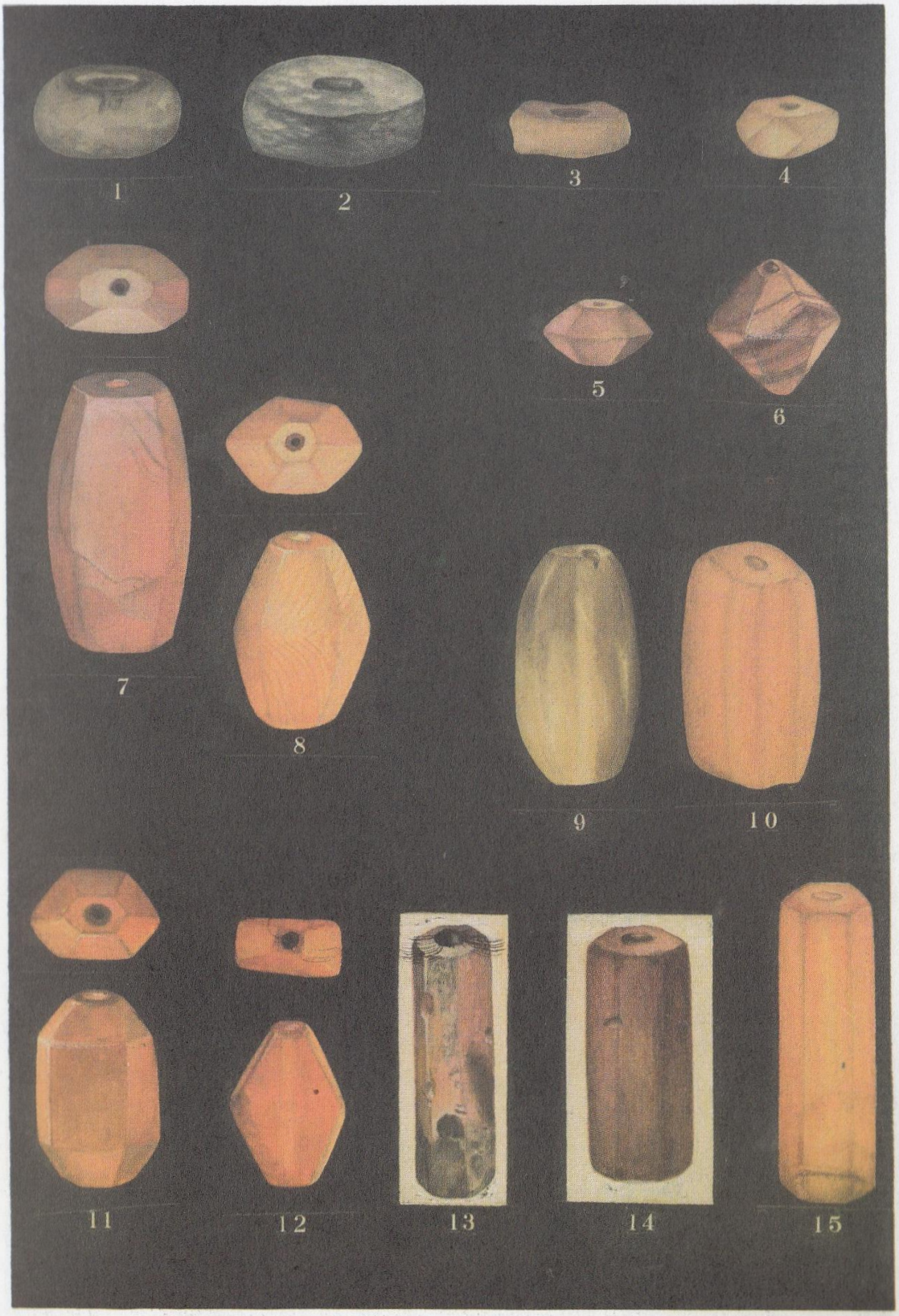

Plate K
Stone Beads of the Age of Contacts and Trade with the East

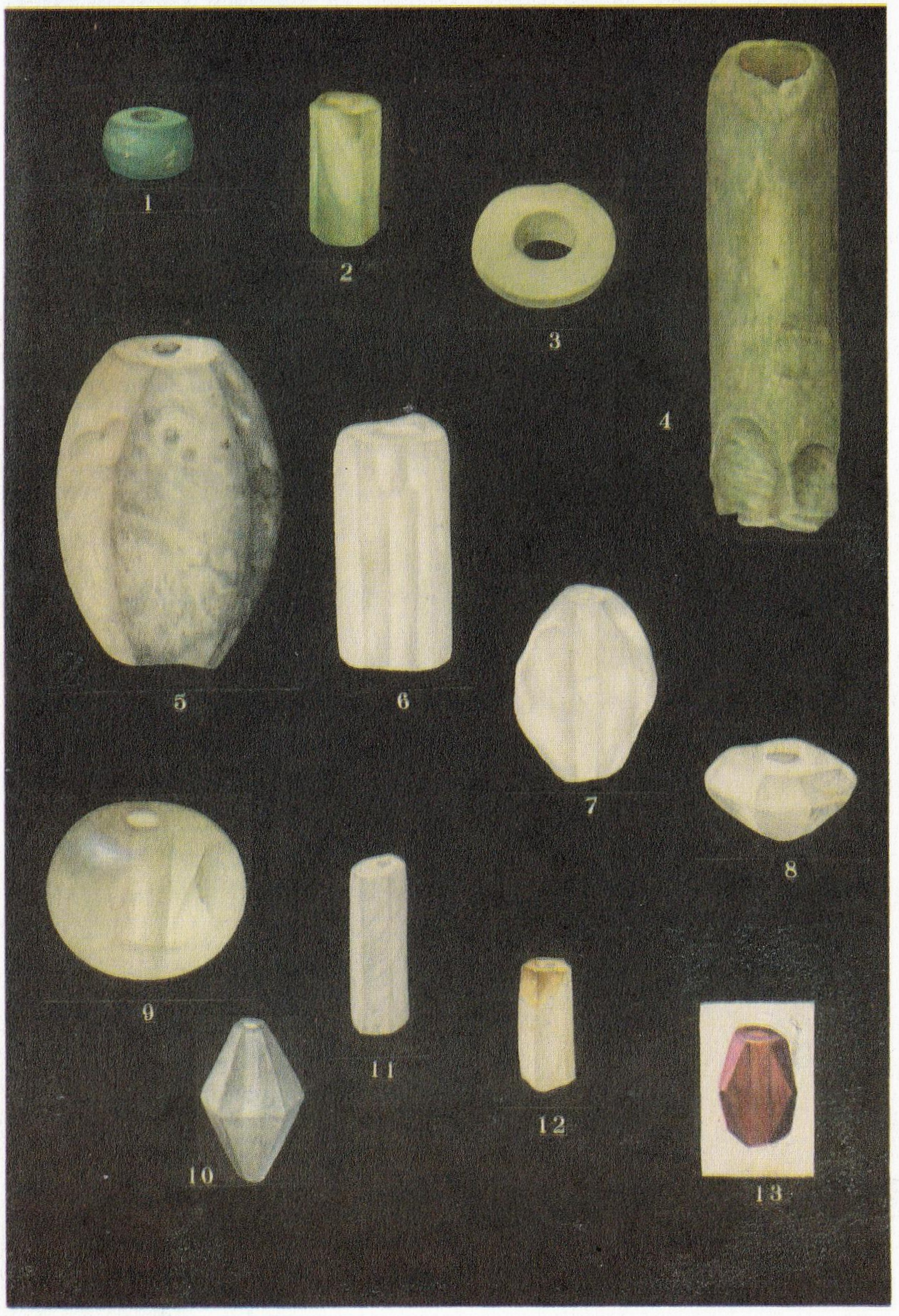

Plate L
Stone Beads of the Age of Contacts and Trade with the East: Middle Phase