

ANTHROPOLOGY

Scale for Cultures Traced

A similar evolutionary pattern exists for both the Old and New Worlds. Only the actual dates of the eras, beginning with the primitive, differ.

By MARJORIE VAN DE WATER

► CIVILIZATION followed the same pattern of development in all the world centers of civilization. The peoples of the new world as well as those of Egypt, Mesopotamia, and China went through the same eras in their growth toward the peak of their culture.

They all began with a period in which they lived primitively on wild game and wild fruits and other foods. They reached a climax with empire building. The pattern followed in this development has been traced by Dr. Julian H. Steward, anthropologist of Columbia University.

This is the first time that a single scale has been worked out for the cultures of both Old and New Worlds. Most American anthropologists have previously attributed such similarities as have been found to cultural diffusion in some unexplained manner rather than as a natural sequence of events occurring as cause and effect in the course of a similar evolution.

Cradles of Civilization

Six world centers have places on Dr. Steward's scale of development. He chose them because they were the cradles of civilization and because culture was facilitated by the fact that all were in arid or semi-arid regions. The scale appears in *AMERICAN ANTHROPOLOGIST*.

The idea that the arid soil made farming very difficult and that the problem of living in such dry regions stimulated cultural development is a mistake. On the contrary, the dry soil facilitated culture because it was easily tilled by a digging-stick and irrigation farming.

Other parts of the world such as the tropical rain forests, the northern hardwood forests and the sodded plains areas could be tilled only with the greatest difficulty by people who lacked iron tools.

But before the people knew how to farm all these cradles of civilization went through a period of living by hunting and gathering. In those days all of man's energies had to be devoted to satisfying the biological needs for food, clothing and shelter. Simple crafts of pottery, basketry, weaving and permanent housing were unknown. This era came first in all the world centers, but the actual dates were different. In the Old World people emerged from this era much earlier than they did in the New World. The dates set by Dr. Steward, which are only roughly approximate, are 8000 B. C. for Mesopotamia,

7000 B. C. for Egypt, about 5000 B. C. for China, 2000 B. C. for Northern Peru and not until about 1500 B. C. for Middle America.

Then the Indian in Peru began to plant beans and dig himself a semi-subterranean house. In Mesopotamia the people probably domesticated millet or wheat and maybe also domesticated animals. In Egypt they may have domesticated plants and traces have been found to indicate that they did make pottery. This era lasted until about 5000 B. C. in Mesopotamia and until about 500 B. C. in Middle America.

As farming in these arid regions developed, there was a need to reckon seasons and forecast the rise and fall of rivers and other such aspects of the understanding of nature. This led to the forming of an upper class of individuals with knowledge and magic. Increasingly efficient farming made it possible for the farmer to raise more than he needed to eat himself and left a share to be contributed to the upper ruling class.

Increasing population brought a need for political integration and this led to the creation of small states ruled by the religious leaders. In the Old World, the more important domesticated animals, except the

horse, were present from early in this "formative" era. In the New World, however, the absence of suitable wild species for domestication limited such animals to the dog and in the Andes of Peru to the llama and alpaca.

Irrigation was still on a local scale, and control of it was one of the more important practical functions of the religious leaders.

During the "formative era," all centers of civilization developed ceramics, loom-weaving, basketry, metallurgy (except in Middle America) and the construction of houses and religious edifices.

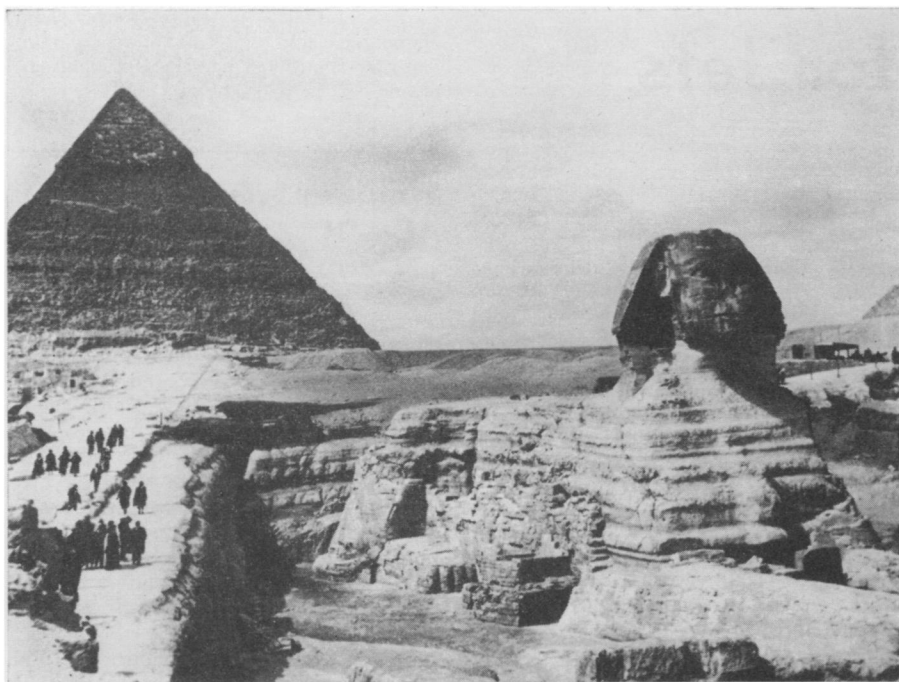
Regional Development

Following the formative era there came the era of "regional development and florescence." No new technologies were invented but irrigation works were enlarged, releasing a larger portion of the population for intellectual interests. At this time the largest religious edifices were built and the finest art and manufactures of any era were produced, each region producing distinctive styles. These products were dedicated principally to the upper classes which were still religious and to the temples.

Wheeled vehicles appeared in the Old World during this era. The wheel was used on toys in this same era in Middle America, but was not used in transportation, probably because of the lack of draught animals. Every New World center developed roads, boats and canals to a degree of efficiency which enabled them to achieve states as



NEW WORLD CIVILIZATION—The great temple of the Warriors in Chichen Itza, Yucatan, was built in the era of militarism and empire building.



OLD WORLD CIVILIZATION—*A parallel in the Old World is the tomb pyramid of the Warrior King Chephren built in the same era as the Yucatan temple. An interesting feature of these military-religious edifices is that the cubic content of each is greater than that of the total of all the private dwellings of the people who built them.*

large as those of the Old World.

The priesthood, devoting full time to religious matters, laid the foundations of astronomy, writing and mathematics in all centers.

Militarism had its birth in this era, and it was with the help of the military that the rulers were able to extend their authority over subject states and enlarge their irrigation works. A temporary decrease in population probably followed the initiation of large-scale warfare.

Then followed the era that Dr. Steward calls the era of "Cyclical Conquests." This was a time of empire building and large scale militarism. Now cities were founded in all the world centers. Trade developed within empires and even beyond, and in

some centers money was used. The principal change in manufactures was a strong trend toward standardization and mass production. In some centers there was a military class and captives of war became slaves.

Then population pressure and abuse of the common people brought rebellion, which destroyed the empires and returned society to local states and a period of dark ages. Irrigation works were then neglected and population decreased.

This empire-building era was ended in the Old World with coming of the Iron Age. In the New World it was interrupted by the Spanish Conquest. That ended the natural development of the native American culture, and pre-Columbian civilization.

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AERONAUTICS

Helicopter Gets Capsule

➤ A PROJECTED "capsule-carrying" helicopter will join forces with a capsule-carrying airplane to deliver freight from an airport near its source to out-of-the-way places where planes can not land. The capsule in this case is an attachable and detachable cargo compartment about the size of the body of an ordinary overland passenger bus.

The capsule-carrying plane was announced

a year or so ago by the Fairchild Engine and Airplane Corporation, Hagerstown, Md., its designer and builder. The planned helicopter capsule-carrier has just been revealed in PEGASUS, publication of the Fairchild company, but it is to be constructed by Piasecki Helicopter Corporation, Morton, Pa.

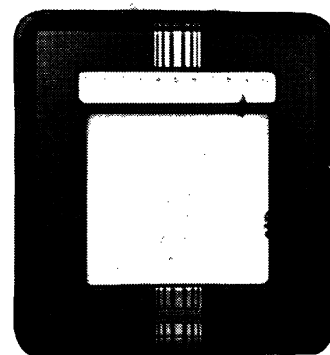
The airplane will carry the cargo compartment to the airport nearest to the final

destination, and deposit it upon the runway. The helicopter will pick it up at that point and take it, without having to reload, on the final section of its route. This could provide easy and quick transportation of needed equipment or supplies from manufacturers to users, particularly to American soldiers who, in another war, might find themselves in a hard-to-get-at location.

The carrier plane is a version of the Fairchild Packet, now widely used as a cargo ship by the armed services. In it the box-car-size cargo compartment which forms the lower part of the ordinary Packet, is omitted and the space is available for the detachable capsule. The operating part of the plane remains about the same. The main landing wheels of the new version are at the end of struts long enough to permit the plane to straddle the capsule as it rests on the runway. Mechanism is provided by means of which the capsule is raised to become the "belly" of the carrier, to which it is firmly attached.

The helicopter to be used, which will probably be ready for tests within two or three years, will also be able to straddle the capsule. It will be somewhat like the type of helicopters built by Piasecki and now in service in that it will be an elongated affair with overhead lifting and propulsion rotor blades at front and rear.

Science News Letter, November 12, 1949



Now You Can Plot X vs Y Automatically

A new Speedomax Recorder saves hours of data plotting by automatically drawing the relationship between any two variables instead of plotting just one as a function of time as done by usual recorders. The new instrument has two high speed electronic circuits . . . one for each axis. In other respects, it's a standard Speedomax.

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