the routes will probably leave the edges to join with other parts of the sector.

Communications routes should be carefully drawn so as to avoid making all parts of the subsector accessible; a subsector should reserve some areas as backwaters for exploration and adventure. Communications routes are drawn as single lines connecting hexes on the subsector grid.

The star map, once generated, shows the distribution of star systems in space and shows their relationships to each other in terms of relative distance and commercial spacelane connections.

WORLD CREATION

The term world refers to the various bodies that are contained in a stellar system; it encompasses planets, satellites, and asteroid belts. For example, the single most important world in a system may not be a planet; it could be a satellite of a gas giant or it could be a planetoid within an asteroid belt.

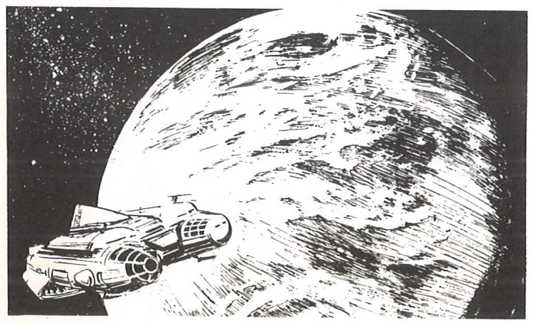
The worlds contained in the star systems on the subsector map may be further classified in terms of their gross physical characteristics and their effects on persons living on them or travelling to them. These characteristics (starport, six basics, and a technological index) indicate specific facts about a world through the use of single digits (the numbers 0 through 9) and letters (A through Z, omitting O and I as they may be confused with numbers). In most cases, the instructions below concentrate on numbers, reserving letters for use by the referee to describe extraordinary situations.

This world creation process applies only to the single most important world in a star system; additional planets in a system should be generated by the referee as necessary.

The six basic planetary characteristics are generated using two-dice throws, with DMs applied based on other characteristics. After these six are established, a technological index is created from the information they contain and from the world's starport type. Starport type, the six basic characteristics, and tech level establish the basic identity of a world. Additional information can be generated, and should be, to more fully describe a world.

When originally generating a world, a subsector index containing world name, location, universal planetary profile, and other basic data should be compiled. This listing should be available to players who travel through the subsector.

In addition, each world should be allocated at least one page (and preferably several) in a central notebook maintained by the referee. As characteristics are generated, they should be recorded along with the name of the world and its location (generally its subsector and hex number). In addition, the referee should generate other information which may be pertinent; this may include details of other planets in the star system, radiation characteristics of the star, the types of terrain present on the planetary surface, unique encounter tables (prescribed by the section on animal encounters), data on flora and fauna, industrial or agricultural capacity, social structure and government, or possibly actual maps of the planetary surface.



Individual characteristics for worlds are produced by six two-dice throws, modified by circumstances and by previous characteristics. The specific throws are given in the world generation checklist and in formula form below.

Starports (from starport table): The starport type has already been generated when the subsector was mapped, and the information should be noted from the map.

Planetary Size (2D – 2): The digit representing planetary size indicates the diameter of the planetary sphere stated in thousands of miles. This size determines varying gravitational strengths and planetary templates for space combat.

Planetary Atmosphere (2D – 7 + size; if size 0 then atmosphere 0): The atmosphere digit represents the breathing environment encountered on the world. Some atmospheres require protective measures.

Hydrographic Percentage (2D – 7 + atmosphere; if size 0 then hydrographics 0; if atmosphere 0, 1, or A+, then apply DM – 4): Hydrographics represents the percentage of planetary surface (in increments of 10%) covered by seas or oceans. For normal worlds, this will be water; on other worlds (with exotic, corrosive, or insidious atmospheres), it may instead be other liquids or fluids such as ammonia.

Population (2D – 2): The digit indicating population is an exponent of 10. This may be viewed as the number of zeros following a one. Thus, a population digit of 6 indicates a population of approximately 1,000,000.

Planetary Government (2D – 7 + population): The digit representing planetary government indicates a range of possible ruling systems, from anarchy to totalitarianism. The planetary government table gives a brief precis of the general characteristics of each government type. Balkanization is a special result, and indicates that there is no world government; instead several rival territorial governments exist. In such cases, the referee should generate the specific qualities of each territory on the planet separately.

Law Level (2D – 7 + government): The digit representing law level indicates the relative force of law extant on the world. Law level states local restrictions concerning the possession and use of weapons by individuals.

At times, the referee (or the players) will find combinations of features which may seem contradictory or unreasonable. Common sense should rule in such cases; players or the referee should generate a rationale which explains the situation.

Finally, the referee should always feel free to create worlds which have been deliberately (rather than randomly) generated. Often such planets will be devised specifically to reward or torment players.

TECHNOLOGICAL LEVEL

The degree of technological expertise, and thus the capabilities of local industry, depends greatly on the basic characteristics of a world. This technological index is generated based on a one die throw, modified by DMs dependent on planetary characteristics.

Consult the tech level table and compare the appropriate planetary digits with the descriptions; note all DMs indicated and sum them to form one total DM. Throw one die and modify the result, thus determining the local technological level. Note the result in the appropriate records.

World technological levels may vary from 0 to 20, more commonly ranging from 4 to 10. Higher numbers indicate greater capability. The technological level is used in conjunction with the technological level table to determine the general quality and capability of local industry. The tables indicate the general types or categories of goods in general use on the world. In most cases, such goods are the best which may be produced locally, although better goods may be imported by local organization or businesses when a specific need is felt. Local citizenry will usually not be armed with weapons of a type which cannot be produced locally, although police or military may be. Tech level also indicates the

general ability of local technology to repair or maintain items which have failed or malfunctioned.

The technological level tables have several spaces or holes, and such gaps should be filled in by the referee or the players when they discover items or devices of interest.

REFEREE'S NOTES

The purpose of the world generation sequence is to aid the imagination. Even the most imaginative individual soon loses brilliance in the face of creating hundreds of individual worlds. The procedure substitutes die rolls for random imagination, allowing the referee to use that information to determine specific world data. Imagination may be required to explain a tech level 4 civilization in an asteroid belt or a high population world with a participating democracy for a government.

Characteristics for worlds should be construed as guidelines rather than strict limits. For example, a world with a hydrographic percentage of A is 100% ocean; nevertheless, the world would have small islands for a starport.

Starport: The various starport types are intended to provide a variety of facilities for use in trade or survey missions. Starports provide fuel or construction yards.

Bases: The tables provide for scout and naval bases at some worlds. These bases serve as points for scout and naval veterans to renew acquaintances with old friends, to find potential patrons, and to scrounge or buy surplus equipment of use to them. The referee may elect to include other types of bases, perhaps army bases, merchant exploration or trade bases, and defense establishments.

Travel Zones: The use of travel zones is intended to assist in designating areas to avoid and areas to explore. The referee should establish reasons for travel zones.

World Size: The generation tables assume that a world will be a solid matter sphere. Alternatives are possible but are rare enough to require implementation by the referee. These include:

Rosettes: Three or more equal masses (worlds) set at the points of an equilateral polygon and with the correct equal angular velocities about their center of mass will have a stable orbital configuration; no central star is required. Rosettes almost never occur naturally.

Ringworlds: An incredibly strong band may be set rotating about a central star, making a ringworld which uses centrifugal force to provide a simulation of gravity. A ringworld at the distance of Earth's orbit and with a width of 1.6 million kilometers has a usable surface area of about three million Earths.

Sphereworlds: Using materials similar to those in a ringworld and adding gravity generators where necessary for strength and comfort, a spherical shell could be used to completely enclose a star. Such a shell would then trap all stellar radiation for use by the civilization. With a radius of about 93 million miles, the internal surface area would equal about one billion Earths.

Atmosphere: The various atmosphere types require specific personal equipment for survival and protection.

Vacuum or trace atmospheres require use of a vacc suit.

Tainted atmospheres require the use of filter masks.

Very thin atmospheres require the use of compressors to insure sufficient oxygen. Tainted, very thin atmospheres require a combination respirator/filter mask for survival.

Thin, standard, and dense atmospheres are breathable without assistance.

Exotic atmospheres require the use of oxygen tanks, but protective suits are not needed.

Corrosive atmospheres require the use of protective suits or vacc suits.

Insidious atmospheres are similar to corrosive atmospheres, but will defeat any personal protective measures in 2 to 12 hours.

Hydrographics: It is possible that some worlds with vacuum atmospheres may have hydrographic percentages greater than 0. In such cases, the world has ice-caps present; the water will not be free-standing liquid.

Population Density: For comparison, the following population densities are common on twentieth century Earth. Earth on the whole has a population of about three billion (population level 9); this is approximately 5 persons per square mile, or 16 persons per square mile of land area. Europe is populated at about 151 persons per square mile, the equivalent of population level 10. The Netherlands contain 1500 persons per square mile, or about population level 11. Hong Kong has 10,000 persons per square mile, the equivalent of population level 12.

Government: Government types indicate the general type of authority on the world; each listed type should be a clue to the referee in administering details of encounters on the world.

Law Level: Law level is an indication of the relative oppressiveness of the world. The digit is classified on the law level table to show prohibitions against weapons. It is also the throw (law level +) to avoid being harassed or arrested by local authorities.

Tech Level: The technologicl level of a world determines the quality and sophistication of the products of a world. It indicates what precise types of equipment are available and common locally.

TRADE CLASSIFICATIONS

Additional details of a specific world can be expressed by the trade classification and statements about the world. The referee should be ready to establish new classifications when appropriate.

The term trade classification is a general catch-all phrase that covers world attributes which influence trade and commerce and other information that is of interest to travellers. Some trade classifications influence the trade and commerce table.

Agricultural worlds have large portions of their economies devoted to agriculture. They must have an atmosphere of 4 through 9, hydrographic percentage of 4 through 8, and a population of 5 through 7.

Non-agricultural worlds import much of their food from off-planet. While such a world may produce synthetic foodstuffs for local consumption, it probably imports quality foods as luxury items. A nonagricultural world must have an atmosphere of 3 or less, a hydrographic percentage of 3 or less, and a population of 6 or more.

Industrial worlds have large production bases and engage in the manufacture of finished goods. Such a world must have an atmosphere of 0, 1, 2, 4, 7, or 9 (vacuum, trace, or tainted), and a population of 9 or greater.

Non-industrial worlds import much of their finished goods. Non-industrial worlds must have a population of 6 or less.

Rich worlds have good climates and environments and are sought after by most individuals as living places. A rich world must have government type 4 through 9, an atmosphere of 6 or 8, and a population of 6 through 8.

Poor worlds are undeveloped and marginal backwaters. A poor world must have an atmosphere of 2 through 5 and a hydrographic percentage of 3 or less.

Water worlds are totally covered by seas and oceans (a hydrographic percentage of A).

Desert worlds have no standing water (a hydrographic percentage of 0) and atmosphere of 2+.

Vacuum worlds have no atmosphere (an atmosphere of 0).

Asteroid belts consist of small planetoids around the central star of the system. An asteroid belt has a size of 0.

Ice-capped worlds have water present only in the form of ice caps; these are vacuum worlds which would otherwise have no water. An ice-capped world has an atmosphere of 0 or 1 and hydrographic percentage of 1 or greater.

Subsector capital is the term given to the single most important world in the subsector, especially if the entire sector is under one interstellar government. Capital is the term given to a world that