

6. Ojibwa and Inuit Hunters

In this chapter the author discusses the similarities and differences of the Ojibwa and Inuit. He also compares these hunter societies with industrial societies to show how mathematical thought developed between the two and to show why little mathematical thought is needed in the hunter groups versus the need in more complex, industrial groups.

Hunter economies tend not to alter the land upon which they live. They live off the land. No specialized skills are needed since each individual makes what he needs; and in what he makes, the need for standardization is absent. In an agricultural or industrial economy the need for specialization is great. The members of these societies alter the environment around them to suit their purpose. Specialization in skills amongst people increases. Ideas need to be transferred from one or more people to others with a high degree of accuracy. Hunters have same mental capacity as agriculturist and industrialist. What lacks is specialized abstractions called mathematics. These abstractions are needed in agricultural and industrial societies in connection with number and measurement. Mathematical thought is not innate, but arises from specific conditions and needs.

Counting

Hunters have intimate knowledge of objects they use and make. Therefore the need to keep count of them is small; they need small numbers for enumeration. Industrial societies have little intimate knowledge of objects because there are so many of them and they can be identical; large numbers are needed to keep track of them. This lack of intimacy has led to the development of words for numbers that are separated from the objects themselves, whereas the intimacy that hunters have with their objects has led to the creation of number words that encapsulate enumeration with characteristics of the object.

Context

The Ojibwa and Inuit have number words in which compact expression is given at the same time to numerical value. Their number words are all nouns which gives them inflection, cases, and possessive inflection. Example; *pingasu-iqtaq-para* will tell someone that “I did it to him 3 times.” The Ojibwa distinguish by properties: dimensional, hardness, flexibility. Example: *midaasw-aabikasiniin* = 10 hard rocks. For dimensional qualities they describe say fruit as 3-D, animal skins as 2-D, and branches as 1-D. *Niiw-eg ozhaskwayaanag* = “4 2-D muskrat skins.”

Arithmetic Operations

The Ojibwa, by having more close contact through trading routes with Europeans and other Indian tribes, developed an arithmetic. The Inuit, not being traders, never really set one up. The Ojibwa’s was more abstract in its operation. They would say “one and one thus two.” The Inuit’s was more concrete; it was more descriptive of the process of addition. “Two and three put together makes five.” The same holds for subtraction. For multiplication both groups count the number of occurrences of a quantity. Ojibwa: $5 \times 2 =$ “two, five times each, thus ten.” Inuit: “two, five times one doing to them they leave ten.”

For division both groups identify with anatomical divisions. When sharing a seal the Inuit do not look upon the seal as one unit of meat to be divided equally and numerically. They divide by the natural structure of the seal. This was true of all material. The two groups saw

numerical division as very strange. This was due to the high development of physical division into natural parts which does not involve enumeration.

Measurement

Measurement in these groups depends more on perceptual judgment than on measurement. A size is picked more for what looks good for the job or task at hand. Then that “measurement” is chosen as the unit of measurement. The hunter groups build their own material goods so that each individual will make a size that fits his needs. There is no need for a standardized unit of measurement. But one way in which a standard may come about is the passing down, from one generation to the other, of the measuring “units” used by a father to build, say, a canoe. He may teach his son to use ten arm lengths for the length of the canoe. The son may use the same number of arm lengths, but his arms may be a different length than his father’s. The unit is the arm length and not so much the actual numerical length. Length, area, and volume are represented more by an individual’s personal sense of measure rather than that of a standard, divorced from the article, and used by everyone. Time is measured by the interval taken to do an activity; for example, the number of sleeps made in a journey.

Conclusion

Neither the Ojibwa nor the Inuit had a need to develop complex mathematical structures. Theirs was more contextual rather than objective. Their mathematical structures were tied to the physical objects they were calculating or describing. The need for standardization and specialization, which comes about when one is less intimate with the objects that are being made or manipulated, was absent from their life style.

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