The Winds in the World of the Ancient Mesopotamian Civilizations

Abstract
The ancient Mesopotamian civilizations (Sumer, Akkad, Assyria, and Babylonia), reaching back to before 3000 B.C., did not develop or possess the notion of the "cardinal" astronomical directions—N, E, S, and W—until the relatively late date of about 700 B.C., in contrast to the Greek and Hebrew civilizations of antiquity. Instead, orientation was determined by the directions of four principal winds, namely, the "regular wind," the "mountain wind," the "cloud wind," and the "Amorite wind." In terms of our notation, these could be described as, respectively, a NW, a NE, a SE, and a SW wind or as winds from the northwesterly, the northeasterly, etc., quarters. Even astronomical features were indicated (mainly before 700 B.C.) in terms of the directions of the principal winds. In the Assyro-Babylonian language the same word designated a principal wind and the direction from which that wind blows.

Judging by inscriptions and other finds of archaeological excavations, the most prominent wind was the "regular wind" (NW wind), probably because of the high frequency of that wind (it is certainly by far the most frequent wind direction in the present era). Maps and city and topographic plans were usually oriented so that the NW direction was "at the top," as N is on current maps. Several of the royal inscriptions say that the walls of the city (often of a rectangular shape) as well as the streets of the city were "opened" to the four winds. These statements are corroborated by archaeological excavations. It seems likely that the orientation was chosen so as to take advantage of the heat-stress alleviating effect of winds.

1. Purpose of study
This study is intended to draw meteorologists' attention to the fact that in the ancient Mesopotamian civilizations (Sumer, Akkad, Assyria, and Babylonia) the principal winds and their direction played a notable role in the world of ideas as well as in matters of practical concern. They occupied a major role in their religious beliefs, but as this aspect is not within the compass of the present paper, only a brief reference will be made to it in Section 5. From well before 3000 B.C. (when the Sumerian civilization began its rise) to about 700 B.C. (when mixing of the then existing Assyrian and Babylonian states with other civilizations of the Near East brought about some changes), the notion of our "cardinal" astronomical directions of N, E, S, and W did not exist for the Mesopotamians. Instead, the directions of objects such as topographical features, the orientations of cities and buildings, and even the positions of astronomical objects and events were described with reference to the directions of the principal winds.

2. Background
As stated above, the ancient Mesopotamian civilizations did not develop or possess the notion of the cardinal directions until a late date in their history. This contrasts with the fact that some of the "younger" eastern Mediterranean cultures of antiquity, such as those of the Greeks and Hebrews, made wide use of the cardinal directions well before 700 B.C. Ancient Egypt, whose antiquity is about as great as that of the early Mesopotamian civilizations, was closer to the ideas of the Greeks and Hebrews (as well as to those of our own), except that they referred to "regions of the sky" ("Himmelsgegenden" in German). For example, the "northern region" extended from our NW to our NE; sharply defined directions were not common.

In the Assyro-Babylonian language (dialects of the Akkadian) the principal directions of orientation, as well as the winds blowing from these directions, were denoted by one and the same word. Actually, it is more correct to say that in the ancient Mesopotamian civilizations it was the directions of the principal winds, four in number, that determined the principal directions of orientations.

Until about a hundred years ago it was assumed unquestioningly that the terms representing directions or winds in the very large extant body of Mesopotamian cuneiform tablets and other inscriptions (for example, on obelisks or stelae) should be identified with the cardinal directions N, E, S, and W. A decisive change in these views was produced in the early 1880s by two brief notes, each by British Assyriologists. Pinches (1883, p. 74) was the first to draw attention to the fact that a small tablet, describing the locations of countries surrounding Babylonia, had the following inscription (assuming that the Assyro-Babylonian terms representing principal directions are to be interpreted as N, E, S, and W):

The south (šītu) is Elam, the north (iltānu) is Akkad, the east (sadū) is Su-edin and Gutl, the west (aharru) is Phoenicia. On the right is Akkad, on the left is Elam, above [in front] is Phoenicia, behind is Su-edin and Gutl.

Pinches remarks at the outset that in the first sentence Akkad should probably read Urashitu, meaning Armenia and not the northern part of Babylonia, namely, Akkad. Pinches then goes on to suggest that since Akkad and Elam are placed in opposition to each other according to the tablet and since these countries are situated with

1 Gutl was a "country" located on the western slopes of the central Zagros Mountains, to the east of Babylonia. The savage Guts were the most deadly enemies of the Sumerians. Su-edin (see footnote 2 for its present reading) was a geographical rather than a political "entity" east of the Tigris (Finkelstein, 1955, p. 4).
regard to each other NW and SE, respectively, one should conclude that the north referred to in the tablet is in reality northwest, the south is southeast, etc.

In a note, following Pinches’s note, Bertin (1883, pp. 75–76) points out that Pinches’s interpretation settles the question of the differences in orientation between Assyrian and Egyptian monuments. The Egyptians oriented their monuments so that the sides of rectangular monuments faced N, E, S, and W, but the Assyrians used an orientation in which the corners faced these directions. Bertin adds:

... Amongst those ancient nations there were no points of the compass in our modern conception of the term, but cardinal regions, North, South, East, and West. The central part of the Egyptian northern region, corresponded to our north, and extended therefore from N.E. to N.W. ... On the contrary, the Assyrians, copying the Akkadians, placed their cardinal regions the other way, their north, itanu, corresponding to the side from North to West, and their West, to the side from West to South, etc.

We thus note that for the ancient Mesopotamians a term like NE meant the region of the sky from north to east.

In this section we have discussed in brief the meaning of the terms representing directions in the Assyro-Babylonian language in terms of our own directional notation. In the next section these directions will be connected with the directions of the principal winds. But, before passing on, we should add that Thorkild Jacobsen points out (personal communication, 1977) that the present reading of some of the words occurring in the text of the tablet considered by Pinches is different from the reading given by him at the time, though that difference does not affect the validity of Pinches’s inferences. The subject of the present paper makes it worthwhile to state that the word read a century ago as “aḫarru” is now read “amurru.” Finally, we note that the new interpretation of “aḫarru” (or, rather, “amurru”) as SW does not really place Phoenicia in its correct direction with respect to Babylonia (Phoenicia was to the west), but other indications do give support to the new interpretation (for instance, some of the archaeological evidences quoted in Section 4).

3. The principal winds and their directions

The etymology of the names of winds can in some cases give a clue as to the directions of the winds of concern. In this context, Tallqvist’s (1928) discussion of the etymology of wind names in a large number of countries is of considerable interest. The amount of material in Tallqvist’s study relevant to the general area of the Persian Gulf is limited, but, fortunately, we have additional results from other Assyriologists.

Delitzsch (1874, p. 141) was the first to offer the etymology of both the Sumerian and the Assyro-Babylonian (Akkadian-Assyrian-Babylonian) terms that were interpreted as an east wind or east as meaning a “mountain wind” or “direction of the mountains.” Because in some subsequent work Delitzsch did not adhere to his first derivation, Tallqvist (1928, p. 114 and footnote 2) reexamined the matter and confirmed Delitzsch’s original etymology. A rather similar stand was taken by Unger (1931, p. 123). There is some justification in reinterpreting the former “east wind” as a northeast wind since there is a major mountain range to the east of Mesopotamia (the Zagros Mountains) extending from the NW to the SE, and the winds blowing from these mountains are centered, more or less, about the NE. It will be seen in Section 4 that finds of archaeological excavations and pertinent inscriptions lend support to the view that the term previously translated as an “east wind” should be taken to be a northeast wind, or a wind from the northeastern quarter.

Let us now turn to the case of the wind, or directions, earlier interpreted as a north wind, which appears to be one of the most prominent winds of the inscriptions. Tallqvist (1928, pp. 145–146) points out that the most frequent relevant Sumerian name “IM si-di” a (now read IM si-ši), used in the Assyro-Babylonian literature means something like “straight-going” or “straight-oriented” wind. It is conjectured by him, and by other scholars, that this “straight-going” or “straight-oriented” direction is likely to be the general direction of flow of Mesopotamia’s twin life-giving rivers, namely, the Euphrates and the Tigris. Since this general direction is NW (that is, from the NW to the SE), he suggests that the term represents a NW wind, or a wind from the northern region. It will be noted that his suggestion agrees closely with the implications of Pinches’s and Bertin’s ideas. And, if the foregoing interpretation is accepted, the prominence of this wind and direction in the ancient inscription would harmonize with the fact that the NW wind is (certainly, in our times) the wind of highest incidence (see Table 1).

The results and ideas of several scholars, some of them antedating Tallqvist’s study (see, e.g., Hommel, 1885, pp. 444–445; Hagen, 1891, p. 246, footnote) support the above inferences relative to the “north wind” (or, more correctly, the NW wind), except that German Assyriologists, who reinterpret the former “north wind” as a NW wind (Jeremias, 1929, p. 145; Unger, 1931, p. 123), prefer to translate the most frequent relevant Sumerian term a “favorable wind” (“recht,” “giinstig,” in German). One plausible explanation for the epithet “favorable” may be that the NW wind, which is the most frequent wind, is a comparatively strong, steady, dry (though warm)

2 The other words concerned are Su-bir, in preference to Su-edin, and Urartu rather than Urash around (Armenia) even though the latter variant used by Pinches is also attested. In “Su-bir,” the subscript indicates one of the number of homophones of “bir” (see footnote 3). It is from Urartu’s name that Ararat is derived, the name of the mountain where, according to the Book of Genesis (Ch. 8: 4), Noah’s ark came to rest at the end of the Deluge.

A Sumerian sign has many readings. When a firm choice cannot be made among these readings, the Sumerologists write in capital letters the most common value of this sign. The presently accepted reading of the sign concerned is tuₐₐ, where the subscript indicates one of the homophones of “tu”; tuₐ is the accepted reading of the sign IM, which in our context means “wind” or “direction.”
wind that, presumably, reduces the heat burden on the body through evaporative cooling.

Thorkild Jacobsen points out (personal communication, 1977) that the most common name for the “north wind” in Sumerian tablets (i.e., in original tablets inscribed in the Sumerian language), “IM si-sa,” and the corresponding Assyro-Babylonian term “îšaru,” have the meanings (see Oppenheim et al., 1960, p. 224) “normal,” “regular,” “straight,” “ordinary,” “favorable,” etc. The Assyro-Babylonian term “îltanu” (older form: “îšanu”) also has the possible meanings “one,” “unique,” “outstanding,” etc. If we think of the NW wind as unique, or outstanding, in the sense that it is of very high incidence (Table 1), then the epithets “regular” or “common” would suit the case well. At Jacobsen’s recommendation, we have adopted the name “regular wind” for the wind of concern.

In our own times this most frequent wind of the Persian Gulf area is popularly called “shamal,” derived from the Arabic word for both “left” (‘semol’ in Hebrew) and “north.” For the Arabs, the ancient Hebrews, and some other ancient Semitic people, the eastern region of the sky was its principal region (see Tallqvist, 1928, pp. 124–126). Facing east, the NW wind of the Persian Gulf area is approximately to the left of the observer.

The Sumerian name of the wind that was usually translated as a “south wind” means something like a “cloud wind” (Jeremias, 1929, p. 147, footnote 1; Unger, 1931, p. 123). Since it is the SE wind of southern Mesopotamia and the Persian Gulf that best answers this description, it seems warranted to identify the wind of concern (ṣûtu in Assyro-Babylonian; see Section 2 for the text of the tablet quoted by Pinches) as a SE wind. In our day, that wind is popularly called “kaus,” and the Glossary of Meteorology (Huschke, 1959, p. 326) describes that wind as follows:

A moderate to gale-force southeasterly wind in the Persian Gulf; it is accompanied by gloomy weather, rain and squalls. The kaus is most frequent between December and April. It is associated with the passage of a winter depression. . . .

That the SE wind deserves the designation “cloud wind” (in the winter season) is intimated by some data published by Roux (1961, p. 18) for Basrah (data from the Basrah Petroleum Co.) showing that in the two rainfall seasons of November–May 1956–57 and 1957–58 there was a total of 61 rain days with 37 days (61%) out of 61 associated with winds between S and E. Abdulahad (1962, p. 36) published a table listing wind direction data for thunderstorm days at Baghdad. Out of a total of 164 days with thunderstorms at Baghdad over the years 1950–60, on 64 days (39%) the winds were between S and E.

Finally, we come to the case of the wind name that was often interpreted as denoting a west wind. Tallqvist (1928, p. 135) suggests that the pertinent Sumerian term “IM mar-tu” (now read IM mar-dû) relates to a “revolving storm,” in addition to its meaning as a wind blowing from the direction where the sun “enters its nocturnal abode” or the direction of the region of the sky of that “abode.” (Delitzsch (1874, p. 139) gave a similar interpretation to one of the parallel Assyro-Babylonian terms.) Jeremias (1929, p. 147, footnote) sets forth the idea that the Sumerian name means a “storm wind” (see also Unger, 1931, p. 123).

Tallqvist, Jeremias, and Unger adopted these translations of the Sumerian term “IM mar-dû” on the basis of glossaries of the Sumerian language that were available in the early decades of this century. T. Jacobsen points out (personal communication, 1977), however, that the interpretations offered by these glossaries are based on an incorrect reading of some cuneiform signs. It is hard to give the term “IM mar-dû” a graphic “meteorological” name (as was possible in the case of the NE and SE winds). At Jacobsen’s suggestion we shall refer to that wind under a name closely related to its Assyro-Babylonian name “amuru”: Amorite wind. “Amorite” refers to the group of Semitic peoples, the Amorites, who were located in areas to the west and west-

Table 1. Frequency (% of total) of wind directions at Habbaniya,* Iraq, for the years 1950–54, based on 3 h synoptic observations† (wireless reports) received at the Forecast Center of the Israel Meteorological Service.

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* Located 33°22’N, 43°34’E, at 45 m MSL.
† Total number of observations received was 867 for January, 713 for July, and 8889 for the year.

Note: The title of one of the popular myths of ancient Mesopotamia is translated (e.g., Mercer, 1939, p. 799 and p. 801) “Addapa and the South Wind” and in the text of the myth the same wind name occurs several times. The correct translation of the wind of concern is “Southeast wind.” The myth seems to have been popular around the middle of the second millennium B.C. in the whole of the Near East. A copy of a version of the myth translated by Mercer was found in Egypt among the Tell el-Amarna tablets, about 1500 km away from Mesopotamia.
northwest of Babylonia (Amurru, western Semites) mainly toward the end of the third millennium and during the first centuries of the second millennium B.C. (The Amorites are frequently mentioned in the Bible, and the form of the name is taken from there.)

The "amurru" is a wind from the west or the southwest. Actually, the translation "storm wind" adopted by Jeremias and Unger is not entirely inappropriate meteorologically as this west or southwest wind is often strong, gusty, and hot and brings most unpleasant and widely feared sandstorms to Mesopotamia. Oppenheim et al. (1968, p. 93) quote a passage from the cuneiform literature that reads as follows: "... a west wind will rise and the storm will beat down [the barley]." In this quotation the term "west" should, presumably, be read "southwest."

The present popular name of the southwest wind is "suhili" or "suhaili." A publication of the U.S. Navy Hydrographic Office (1952, p. 16) states that "this wind is much feared by the natives as it blows into nearly all otherwise sheltered anchorages on the Persian Gulf." It is probably for that reason that the wind is popularly called by the Arabic names just mentioned as they mean something like "coastal" or "coming or blowing from the coast," meaning the land.

Before turning to some of the archaeological evidence, we wish to summarize the directions of the principal winds and point out that in inscriptions and in documents the winds are at times referred to by serial numbers. Table 2 lists information relevant to the principal winds.

Some examples for reference to the winds by their serial numbers will be given in Section 5.

4. Some of the archaeological evidence

In this section we shall cite two items of evidence in which the contents of inscriptions involving the names of winds can be checked against other archaeological finds at the same sites. It will be seen that these items of evidence corroborate that the correct interpretation of what previously was taken to mean a N direction is a NW direction or the NW region of the sky and that a similar shifting is to be applied to the other principal directions.

An inscription attributed to the Assyrian King Sargon II (reigned 721–705 B.C.) relating to his residence Darr-Sargun, which he erected adjacent to Nineveh, says (Unger, 1931, p. 124) that the residence was laid out to the four wind directions, the names of the winds ("iltanu," etc.) being listed. The archaeological excavations show that the rectangular residence was laid out to face the four directions of NW, NE, SE, and SW. Thus, a combination of the finds of the actual direction of the city walls with the names of winds in the inscription provides a confirmation of the directions of the four principal winds mentioned in the previous section.

Another piece of evidence derives from an inscription ordered by the Assyrian King Sennacherib (reigned 704–681 B.C.). The inscription describes (Luckenbill, 1924, p. 112, lines 84–85 and 92, and p. 118, line 4; Unger, 1928, p. 343; Unger, 1931, pp. 124–125) the positions of the 15 city gates in the walls protecting Nineveh. According to that document, 3 gates faced the "iltanu" (the regular wind; see Table 2), 5 faced the Tigris front in the direction of the "amurru" ("storm wind"), and 7 looked toward the region of sunrise facing the "šatu" ("cloud wind)" and the "šadū" ("mountain wind"). In view of the facts that the gates facing the "iltanu" look approximately to the NW and those facing the "amurru" turn approximately to the SW, and, further, that at the time of the winter solstice the sun rises south of east and at the time of the summer solstice it rises north of east, the "new" interpretation of wind directions, as detailed in the foregoing section, receives considerable support.

Actually, Luckenbill's translation into English of the text only mentions "south," "east," "north," and "west," which is a pity because the original Assyro-Babylonian text prefixes each name by the "determinative" for wind ("šaru," e.g., šiliššatu), so that there can be no doubt whatsoever that directions of wind and not just directions are meant. It should be added, as pointed out by a reviewer, that determinatives are not translated in the accepted assyriological practice.

* The subscript $x$ means that in the system of transliteration, the new reading has not been assigned a position (unlike the case of su-biru, for example; see footnote 2 in text).
5. "Uses" of the principal winds in daily life

Ancient written records as well as other archaeological finds indicate that city walls and streets, palaces, temples, and other buildings (even graves, in some cases) were deliberately orientated to the principal winds, or, at least, to one of the principal winds. The following cities, which played a major role in ancient Mesopotamian history, had more-or-less rectangular walls facing the "four winds": 1) Assur (Unger, 1928, p. 344, Fig. 1); 2) Babylon (Unger, 1931, Fig. 2 (reproduction of a small city map), pp. 124–125, and detailed map in backpocket); 3) Nineveh (Luckenbill, 1924, p. 97, line 85; Unger, 1931, pp. 124–125); 4) Nippur (Unger, 1935; Kramer, 1959, p. 233); and 5) Uruk (Unger, 1929b, p. 354).

In some of these cities the streets were designed in such a way as to be open to the principal winds. For example, the Assyrian King Esarhaddon (reigned 680–669 B.C.) newly founded the city of Babylon. According to an inscription of the king, "the city's streets were opened to the four winds" (Meissner and Rost, 1898, p. 252, lines 37–38; Unger, 1931, p. 124).

An example for the orientation of a palace is the "New Palace" of the Assyrian King Tukulti-Ninurta I (reigned 1244–1208 B.C.) in the city of Assur (Unger, 1928, p. 344). His inscription states clearly that the palace was erected "in the direction of the iltanu." In a later inscription, attributed to the Assyrian King Tiglathpileser I (reigned 1115–1077 B.C.), it states that this palace is "directed to the iltanu."

The question arises as to what the motivation was for these orientations. Was it climatic? Was it religious? The possibility that there may have been a religious motif involved arises because one or more deities were associated with each principal wind. In fact, the wind was considered (Unger, 1929a) to be the breath of the deity or the carrier of the breath of the deity (wind transport!). It appears, however, that in the case of city walls and streets and of some secular buildings, such as palaces, the orientation (mainly to the NW) was not actuated by religious motifs. Certainly, several of the pertinent inscriptions (some of which were quoted in the previous two paragraphs) make no mention nor imply such a motivation. It seems possible that the prominence of the NW orientation was primarily "climatic."

In a country where summer daily maximum temperatures reach ~50°C in the shade, even the hot but dry NW wind can be expected to lead to some alleviation of the heat stress through evaporative cooling of the body. In fact, some Assyriologists have expressed the view that in the above-mentioned cases, the motivation may have been climatic (Jeremias, 1929, p. 147, footnote; Unger, 1928, p. 343).

As to temples dedicated to a deity, or deities, they were usually orientated toward the wind that the particular deity was associated with in the religious ideas of the city or the state. This was done because it was believed that the deity manifested itself in the particular wind or that the breath of the deity was carried by the wind. Additionally, there was a tendency to place a statue of the deity in the NW corner of the temple, whereas in the more southern Babylonia it was placed in the SE corner. This practice was anchored in the belief that the wind carries the breath of the deity. It was probably for similar reasons that the ancient Sumerian burial chambers of the necropolis of the renowned city of Ur (about 3300 B.C.) faced NW (Unger, 1929a, p. 271).

It was stated in Section 3 that the principal winds were on occasion referred to by serial numbers (see Table 2) rather than by their names. For example, in a document dealing with the sale of some land parcels in the Kumaru district of the city of Babylon, it is stated that one of the parcels has its "upper front" facing "Wind No. 4" (SW) and another has its "lower front" facing "Wind No. 3" (NE). A German translation of that document will be found in Unger (1931, p. 308, document No. 8).

6. Concluding remarks

It can be seen from the foregoing sections that in the ancient Mesopotamian civilizations the principal directions of orientation were provided by the directors of the principal winds, which, apparently, then as today, coincide fairly well with the directions NW, NE, SE, and SW. The etymology of the wind names does not have any astronomical reference in either of the two main languages of ancient Mesopotamia. On the contrary, up to about 700 B.C., some astronomical observations were described by means of the directions of the principal winds.

Another instance of the overriding importance attached to the winds in the ancient Mesopotamian civilizations is furnished by the following example. In many cases, we tend to call winds and breezes by the type of topographical surface, or feature, that they blow from: sea breezes, lake breezes, land breezes, valley breezes, mountain breezes (or winds), etc. We have seen that at least in one instance the Sumerians referred to a wind (the NE wind) as a "mountain wind," a procedure paralleling our own inclinations. But there is at least one case where the Mesopotamian civilizations gave a land area a name after the name of the wind that blows from there: Kugler (1909/10, p. 113) states that the Assyro-Babylonian name for the desert is "the home of the [sand] storm wind."

Finally, we wish to add a remark to the case of the NW and the SE winds.

It seems that the ancient Mesopotamian civilizations were fully aware that the onset of the dry NW wind, or that of the dry west wind, dissipates the clouds. Thus, some incantation texts ("Maqlû") have statements like the following:

I shall blow against you [sorceress] like the north wind [and] west wind, I shall scatter your clouds. . . . I shall rise against you like the north wind, the shearer of the sky [I shall scatter your clouds].

(See Oppenheim et al., 1960, p. 269.) A translation into German of the complete texts of these incantations will
be found in Meier (1937, see V-85, VI-58, VII-4, and VII-5).

In Section 3 we have touched on the significance of the SE wind in winter justifying the name “cloud wind.” However, it seems that the SE wind has its importance in the autumn season as well, before the arrival of the rain and thunderstorms. In autumn it brings moist air into Mesopotamia from the Persian Gulf and from more remote ocean areas. Roux (1961, p. 16) quotes sources to the effect that this warm moist air helps ripen the dates, an important produce of both ancient Mesopotamia and of modern Iraq.

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References


announcements

Hundred Years of Weather Service

The India Meteorological Department has issued a commemorative book in celebration of its centennial, Hundred Years of Weather Service (1875–1975). (The “meeting review,” p. 1077, carries further information on the subject.) The 207-page book is generously illustrated with photographs, reproductions of correspondence, and other notes of historical interest. Since weather has always been a prime factor in the lives of the Indian people, the book traces the role of meteorology from some of its earliest known prehistoric references through the rapid scientific development of the past 100 years. A detailed account of the latter includes photos of many of India’s early meteorologists. Other chapters in the book include: Meteorological Instruments and Observations; Rainfall Registration and Hydrology; Weather Archives; Meteorological Training; Service to Agriculture—Agricultural Meteorology Division; Indian Institute of Tropical Meteorology; and International Cooperation. Those interested in the volume may inquire as to its availability from: Office of the Director General of Observatories, India Meteorological Dept., Lodi Rd., New Delhi, 110 003, India.

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