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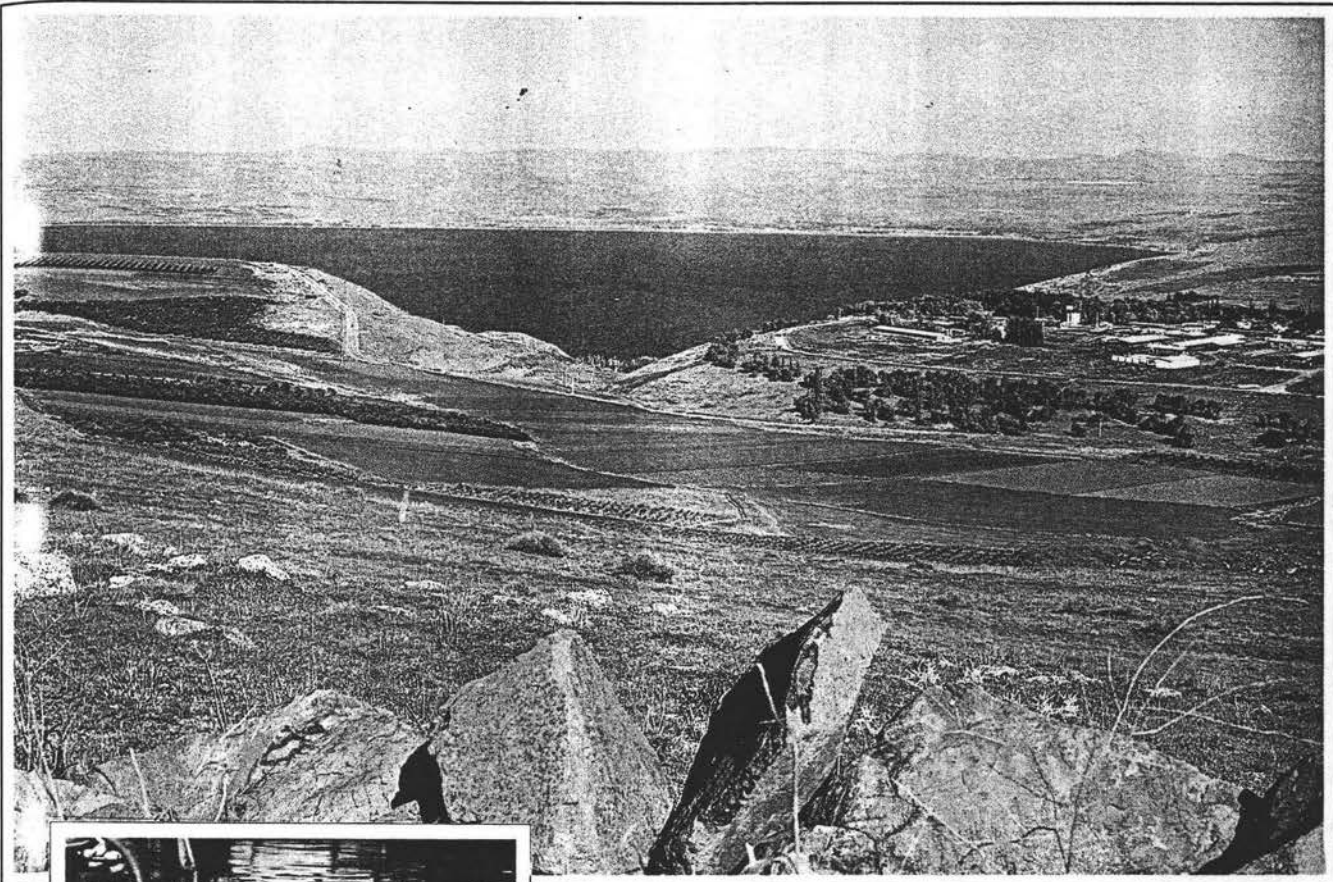
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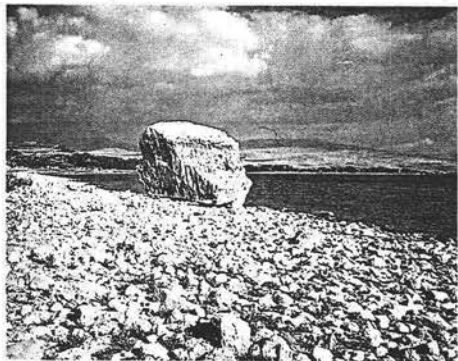
Above: View of the northern part of Kinneret.
Center: Mendel Nun in a fishing boat on the lake.
Below: Eucalyptus on the shore.

A Good Catch

Mendel Nun's Netful
of Knowledge about
the Sea of Galilee

by Yadin Roman

Every morning, Mendel Nun goes out to look for greetings from the ancient fishermen of the Sea of Galilee. For the past fifty years, he has lived at Kibbutz Ein Gev on the shore of the Sea of Galilee, otherwise known as Lake Kinneret. During that time, he has become the number 1 expert on the lake - "the chief Kinneretologist of the State of Israel," I was told. Mendel prefers to be called a "Kinneret scholar." He knows every



Above: The Kinneret is receding, the water level is dropping, and new vegetation is springing up among the rocks in the sea bed.

Center: The "island" that Mendel Nun discovered in the Kinneret - a view from the anchorage.

Bottom: "The Rock of the Ports."

corner, every tree, every beach and stone around the lake. The list of discoveries to his credit is long and respected - not only in Israel, but, perhaps even more, throughout the world.

Among them is the discovery of the remains of a monumental Byzantine church at Kursi - the site of the miracle of the Gadarene swine, one of the most significant events in the New Testament.

Without his research, the ancient harbors of the Kinneret may have been sunken in oblivion forever, and the New Testament's references to fishing in the Sea of Galilee may never have been as fully understood.

"Follow me and I will make you fishers of men," said Jesus to Simon and Andrew, the two brothers who were casting their nets in the sea (Mark 1:16). They followed him, and became his first disciples. Mendel knows exactly what nets they cast, where they cast them, and what fish they

caught. For Mendel, Simon, who became St. Peter, is none other than "Shimele the Fisherman," who sat on the shore and, like him, mended nets.

His book *Hadaig Haivri Hakadum* ("Ancient Jewish Fishery") is the most exhaustive and profound work on the subject of fishing in biblical and historical sources that has ever been written. Some of its nineteen chapters could serve as a doctoral thesis.

But Mendel is not interested in doctoral theses. They require too many footnotes. He sees no reason to resort to references to prove things that are known to him simply from his daily work in the field. Mendel doesn't have a single academic degree to his name. His college education amounts to one year at the Hebrew University of Jerusalem, in 1939/40.

His monograph on the Kinneret is considered the most thorough study of the Kinneret ever made. It covers the whole gamut of Mendel's fields of expertise: fishermen and fishing techniques, winds and currents, sea levels, and the history of fishing on the lake.

Some of the best-known scholars of Israel lore made their home at Ein Gev. First and foremost was Mendel's brother, Mordechai Neistadt, who studied the his-

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tory of Jewish settlement on the Golan. Also among Ein Gev's founders was Jerusalem's current mayor, Teddy Kollek, who has written several books on the history of the Holy City. Second-generation Ein Gev member Muki Tzur, secretary of the United Kibbutz Movement, studied the beginnings of the kibbutz movement.

"Ever since the kibbutz was founded, it has had an atmosphere of searching for roots," Mendel told me, "and I wasn't immune to this fever."

Mendel immigrated to Palestine from Latvia a month after the outbreak of World War II. He had graduated from a Hebrew high school in Latvia and was an active member of the Zionist movement known as Hashomer Hatzai'r.

In 1939, on the farm in Latvia where members of the movement prepared for a kibbutz life in the land of Israel, he decided that it wasn't the right time for prolonged preparations outside of Palestine. "What are we doing here?" he asked his comrades. "Whoever can find a way should get up and leave for Palestine without waiting for a certificate [permission from the British authorities to enter Palestine as an immigrant]."

And so he did. By enrolling at the Hebrew University of Jerusalem as a humanities student, he obtained a student certificate. Together with two friends, he left Latvia a few days after the German invasion of Poland and made his way to Berlin with the aid of his neutral Latvian passport. From Berlin he went on to Vienna, Budapest, and Istanbul. "We were among the last ones to get out of Europe that way," says Mendel.

When he arrived in Palestine he began to study at the university. Despite the opposition of the movement to such non-pioneering activities, he decided that if he had already paid his tuition in order to

obtain a student certificate, he should at least have a taste of a college education.

After one year of studies, Mendel served as a *noter*, a supernumerary policeman for the British authorities in the Jordan Valley. He also made visits to his brother Mordechai, who was one of the first settlers in Ein Gev.

He began to spend more and more time on the Kinneret, and after a while, he joined his brother's kibbutz. His brother became a shepherd, but Mendel launched his career as a fisherman. The two broth-

He was a fisherman on the Kinneret for twenty years. "It was a war for Jewish fishing against the British and the Arabs," Mendel recalled in an interview a few years ago. "Once, before the Six Day War, we dropped anchor and spread out a net opposite the mouth of Wadi Majrasa in the Baticha Valley, in the northeastern corner of the Kinneret. Before we finished pulling in the net, we were shot at from the Syrian positions on the shore.

"We were in two boats, a motorboat and another boat for the net, which was towed by the motorboat. In the first burst of fire, we lay down on the floor. When the firing died down a little, I ordered everyone to move to the motorboat, in order to get out of the area quickly. My helper counted heads and told me everything was okay - everyone had moved to the motorboat. We got away from the area and then it turned out that two were missing.

"It was a difficult decision to return to the danger zone, but as in war, it was clear to us that you don't leave your comrades in the field. Even though we were fishermen, we felt that we were soldiers on the front line. We went back and got them out. Afterward there was a similar case with police boats, but when they returned, they found their two comrades butchered."

In 1950, in the same area, a fisherman from the kibbutz was killed. In the years that followed, fishermen from Tiberias, policemen, and soldiers who were guarding the fishermen were killed. "When we went out at night to fish off Kursi," Mendel relates,

"The wives and children would come to say goodbye to us on the pier, as if we were going off to war."

The British White Paper imposed restrictions on Jewish fishing in the Kinneret. About 250 Arab fishermen worked on the lake, but only a few Jews could be found there. Until the riots of 1936-39, there were also five or six fishing boats belonging to Jews from Tiberias - members of the Hattab, Azuelos, and Levi families that had immigrated to



Mendel Nun working at his "regular" job at Kibbutz Ein Gev's sailing company.

ers' proximity to each other and their shared interest in Israel lore would ultimately lead to a name change for Mendel.

"People began to tell my brother how much they liked his writings on fishing and to tell me how much they liked my books on the Golan. So I decided to change my name - I took a few letters out of Neistadt and got Nun - which means 'fish' in Aramaic. It suited me."

Palestine from North Africa at the end of the nineteenth century.

"When we began fishing in 1937," says Mendel, "they were our teachers. Today, most of the fishermen are a different breed, who aren't a credit to Kinneret fishing. They have begun using poison and explosives to catch fish. It isn't what it used to be."

Mendel has developed a genuine fondness for the ancient fishermen of the Kinneret. "I can relate very easily to the close-knit group of fishermen that comprised Jesus' disciples, and Jesus himself, who lived among them and helped them with their work," he explains. "Jesus' followers and disciples cast the same nets as we do, fished for the same fish, sailed to the same fishing sites, were drenched and endangered by the same storms. The original Gospels - those authentic biographical books about Jesus - were written in Hebrew. Today we only have translations, some of them biased. The Gospels are the most reliable source for the history of the Kinneret.

"There's nothing like the New Testament, with its stories about nights of fishing, its description of the sudden summer winds, and its many details of the Sea of Galilee, to help us understand the lake. I view the New Testament as part of Jewish history."

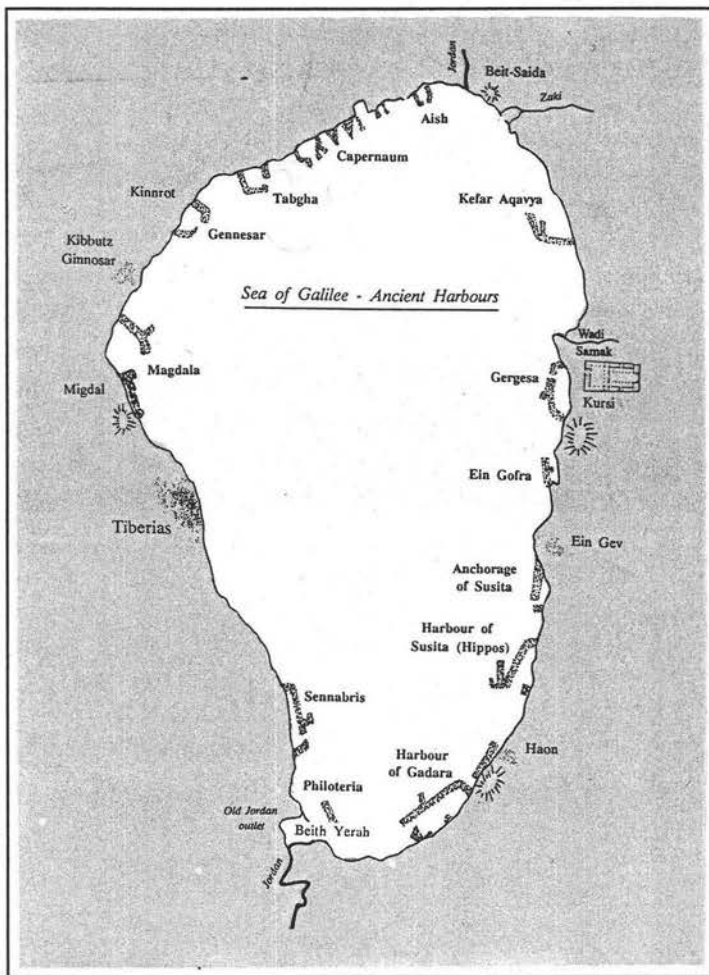
"In Jesus' time, settlements of Jewish fishermen sprung up around the Kinneret," he notes. The Zealot movement, which originated in the Galilee, was undoubtedly a movement of Kinneret boatmen.

The large number of synagogues discovered around the Kinneret attests to the existence of settlements with Jewish inhabitants. Some of the settlements were exclusively Jewish, while others had mixed populations. This is indicated by an inscription in the synagogue in Rehov, which lists the towns that were charged with tithes. Such payments were usually imposed only on those towns that had

entirely Jewish populations, but the list does not include all of the towns that had synagogues in the area - Kursi, for example.

The Talmud and Midrash mention the fishermen of the Kinneret. They refer primarily to *haramei tveria*, the fishermen of Tiberias, whose Hebrew name derives from their main net, the *herem* - the seine.

According to the Talmud, the "Tiberias Fishermen's Organization" had an insurance plan that arranged for compensation



for its members in the event of damages. The boatmen were permitted to supply another boat to anyone who had lost one unless he lost it neglectfully or frivolously or sailed to a place to which people usually didn't sail.

The *herem* is mentioned in the Bible nine times. It is a large net, which has been used since ancient times in the Middle East. According to a tradition from the First Temple period, which was still followed in the Kinneret in the time of the Babylonian Talmud (the Byzantine period), the fishermen of the tribe of Naphtali had the exclusive right to cast

haramim in the lake. The seine continued to be the net of preference in the Kinneret until the Arab fishermen left the area in 1948.

The seine is shaped like a long curtain with sinkers attached to its lower edge and floats attached to its upper edge. The net is about 2 meters high at its ends, and the mesh widens toward the center, making the net about 5 or 6 meters high in that area. The size of the crew handling the net depends on its length, which ranges from 200 to 400 meters. As many as twenty crewmen are required to spread and pull in the longer nets.

The Talmud notes a number of restrictions imposed by the Jewish fishermen organizations on their members, such as those with regard to working on the intermediate days of Passover and Sukkot.

Jewish law permitted the fishermen to fish, providing that they did so unobtrusively and for the day's needs only. But the fishing guilds were stricter in this regard. The fishermen of Acre forbade their members to fish on the intermediate days. The fishermen of Tiberias decided to use only rods and traps during the intermediate days, and to forgo the methods used throughout the year.

These practices did not please the leaders of the period. Rabbi Ami, head of the yeshiva of Tiberias at the end of the third century, censured the fishermen on the grounds that the shortage of fish was spoiling the holiday for the local residents and the pilgrims who customarily came to Tiberias on pilgrimage festivals after the destruction of the Temple. The fact that one of the most prominent rabbis of the time had no control over the actions of the fishermen of Tiberias attests to the strength of the organization.

Through this story, we learn that the practice of eating fish on holidays and the Sabbath was already common in Tiberias in talmudic times.

In his many articles and studies Mendel examines the relationship between the descriptions in the New

ine continued in the Kinneret. One passage that he likes to cite is Matthew's depiction of the kingdom of heaven as "a net which was thrown into the sea and gathered fish of every kind. When it was full, men drew it ashore and sat down, and sorted the good into vessels but threw away the bad" (Matt. 13:47-48).

The above is a precise description of fishing with a seine. The seine is cast into the water and then pulled to shore, with fish of all kinds being dragged

to shore in the process. The fishermen sit on the shore and sort the catch, separating the good fish from the bad. "The bad fish" are the ones without scales, such as the catfish, which are not kosher and therefore cannot be eaten or sold.

It is interesting to compare Matthew's words with a passage from the Book of Habakkuk: "They treat men like the fish of the sea, and so unobtrusively creep things that have no ruler over them. They take them up with rods, drag them in with their seines, and collect them in their nets. Therefore they rejoice and are glad. Therefore they offer sacrifices to their seines and burn incense to their nets, because their portion is fat and their meat is plentiful. Will they therefore always empty their seines and slay nations mercilessly?" (1:14-17).

This is a prophecy about the Chaldeans, whose king ruled many peoples. Habakkuk compares human beings to the fish of the sea, who are abandoned and defenseless, and likens the king of the Chaldeans to a fisherman, who fishes for them unrestrainedly with various nets. Most of the commentators, including Rashi and Radak, did not grasp the meaning of the verb *yaguru* in this passage and interpreted it as deriving from *agira*, that is, "will collect." But everyone who knows the seine will understand the word as "will drag." Another net that was commonly used in the Kinneret was the *kela*, or cast net - a round net 6 to 8 meters in diameter, with sinkers attached to its

edges. This net is generally used by a solitary fisherman. Standing in shallow water, the fisherman arranges the net on his arm and flings it into the water. The net lands like a parachute and sinks to the lake floor. In order to take out the fish, the fisherman goes under the water and removes them one at a time, or gathers the weights and takes out the net with the catch inside it.

The cast net is not mentioned explicitly in the Bible, but it could be the net

referred to in the Book of Ezekiel (32:3), "I will therefore spread my net over you in a company of many peoples and they will bring you up in my net."

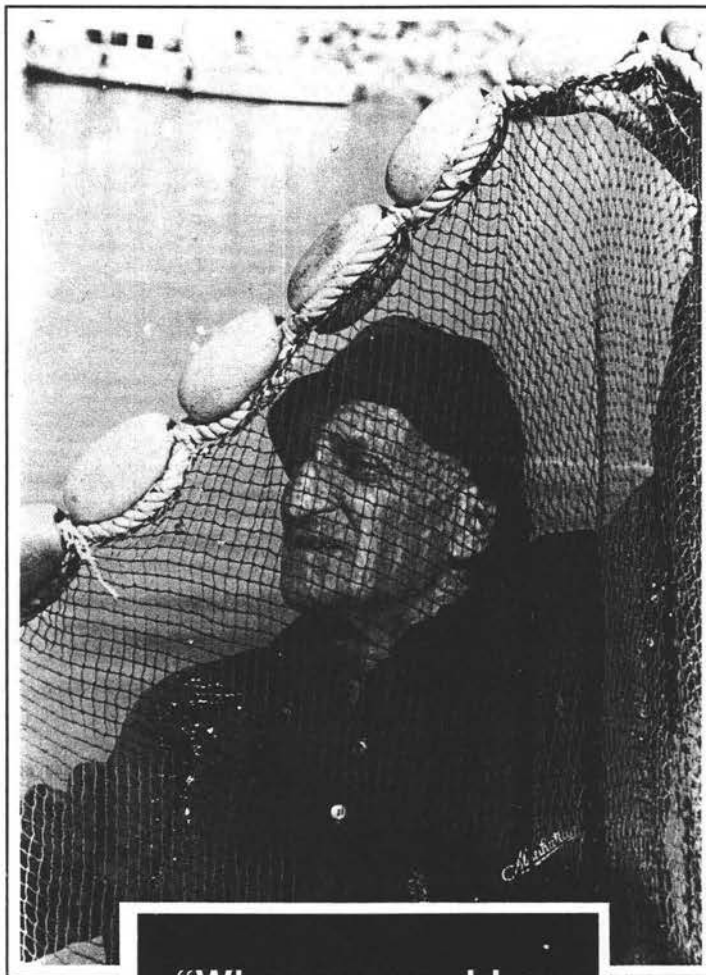
In Greek, as in Hebrew, the *kela* is named for the action needed to operate it: *amphibilustron*, which derives from the verb "to throw around." Figures of fishermen casting nets appear frequently in Roman and Byzantine mosaics.

Reference to the *amphibilustron* appears in the Greek version of the New Testament, in Mark 1:16-18:

"[Jesus] saw Simon and Andrew, Simon's brother, casting an *amphibilustron* in the sea."

A third net is the *ambata*, or trammel, comprised of three layers, tied together to a rope with floats and to a rope with sinkers. The two outer layers are equal in height and have large holes. The inner layer is a normal net, higher, slacker, and more finely meshed than the other two. The trammel is 200 meters long.

The trammel helps us to understand the "miraculous catch," one of the most important events in the Gospels. Versions of the miracle appear both in Luke and in John. One morning, after a night of unsuccessful fishing, the disciples sat in two boats and were directed by Jesus, who was standing on the beach, to a large school of tilapia (known as *amnumim* in Hebrew). The nets were cast and the huge catch filled up the two boats.



"When we would go out at night to fish off Kursi, the wives and children would come to say goodbye to us on the pier, as if we were going off to war."

The fishing and seamanship described in the biblical and historical sources clearly required harbors and anchorages. The harbors of the Sea of Galilee were a major element in the historic events that took place along its shores. Although urban settlement and fishing began in the area as early as the third millennium BCE, most of the ancient Kinneret harbors that we know today were built or rebuilt in the Hellenistic period. It was during this period that the cities around the lake were founded or reconstructed.

The most plentiful remains along the lake shores are from the Roman period, when the rulers of Palestine built cities, roads, bridges, bathhouses, theaters, and the other elements characteristic of Roman culture. The Romans also developed sea transport, and were known for their engineering achievements in the construction of harbors. It can therefore be assumed that the main harbors of the Kinneret were built in the Roman period.

With the economic and cultural decline after the seventh century, many of these harbors were neglected. The breakwaters and harbor facilities collapsed because of the action of the waves and lack of maintenance, and the stones of the wharfs and buildings were taken for secondary use.

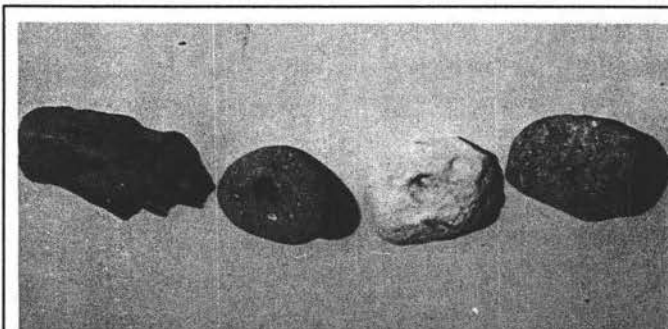
Nineteenth-century travelers looked in vain for ancient harbors. The first scholar to report any success was the British adventurer John MacGregor, who traveled along the Jordan River in his canoe, the *Rob Roy*. He pitched camp near Capernaum, and there he noted a section of an ancient pier.

"I went out several times to the place he describes," says Mendel, "but I found no harbor there. The main problem of the early scholars, and our main problem, too, was that we didn't know how an ancient harbor on the shore of the Kinneret would look." Moreover, nobody knew very much about the Kinneret's past water level.

It wasn't until a few decades ago that the harbors began to emerge. In the early 1970s, the Undersea Exploration Society of Israel conducted a number of surveys in the Kinneret and found three harbors, in Kursi, Migdal (Magdala), and Tabgha. Following these discoveries, Mendel began surveying the rest of the Kinneret shore. In the past twenty years, he has found twelve other harbors that were previously unknown. It turned out that every Kinneret settlement, large or small, had a harbor or at least a small anchorage. Each harbor was built according to the settlement's needs and local conditions.

The beginning of every harbor in the Kinneret is an anchorage, protected by a stone breakwater. Because of the differences in the water level between winter and summer, the breakwater had to be at least 2 meters high, with a base, 4 to 6 meters wide, submerged in the water.

The discovery of the first harbor was an indirect result of Mendel's daily bicycle trips to observe the construction of the road to the Golan Heights in 1969. In the course of his expeditions, he came upon the remains of a huge Byzantine church in Kursi. This find inspired the surveyors of the Undersea Exploration Society to examine the lake bed opposite the church, and there they recognized the remains of Kursi's harbor. These remains had always



Stone sinkers and anchors are Mendel's latest obsession. Here he sorts out his huge collection and attempts to learn how the fishermen used the weights in their work.

been in clear view, but nobody had ever identified them as a harbor.

The breakwater in Kursi was meticulously built of hewn basalt stones. It is about 150 meters long, creating a harbor area of about a half-acre. Near the shore, it is 4 meters wide, and becomes wider the deeper into the sea it goes; at its end it is 6 meters wide.

The anchorage in Kursi is typical of the little fishing villages on the Kinneret. To the north is a small plastered pool in which the fishermen would store their catch. The water for the pool did not come from the lake, as might be expected; it came from a small aqueduct that carried water from Wadi Samek.

Near the pool it is still possible to see the foundations of the wharf of the local fish market, where the fishermen bargained with the merchants. North of the pool are the foundations of a public building, which apparently served as an administrative center for the harbor and fish market. It contains the remains of a mosaic floor. Over 100 lead weights were found near this building.

Also to the north, the action of the waves of the sea exposed another large structure that apparently was the synagogue of Kursi.

The remains of the harbor of another little fishing village, Kfar Akabia, were

found north of Kursi. The village's name was preserved in the Arabic name of the settlement that was on the site, Ka Akeb.

"From the day I came to Ein Gev, Mendel relates, "I looked for the remains of the harbor of Susita (Hippus)." The city of Susita undoubtedly had a harbor. It was one of the Kinneret's largest cities, the gateway to Golan and to the expanse on the way to Damascus. Only after the remains of the other Kinneret harbors were discovered did it turn out that the remains of stone walls south of Ein Gev belonged to the harbor of Susita.

Several years ago, when land for a palm grove was being prepared, all of Susita's harbor or fishermen's quarters was exposed. Part of the Roman road that led from the quarter to the heart of the city was also discovered. North of the harbor, another small anchorage was found.

"One of the harbors we've been trying to find for a long time is the harbor of Tiberias," says Mendel. "A few years ago, the archaeologists showed me a site on the shore of ancient Tiberias, and asked me if I saw the remains of a harbor there. At the time, I was still in the mind set that in order to declare a site an ancient harbor, you have to see the clear remains of a breakwater, and so my answer was negative. I thought the remains of the harbor had vanished under the stones and earth swept into the sea by the numerous cloudbursts in the area."

"This year, I went to the site again and found a large concentration of sinkers. I again began to think that the site in fact contained part of the Tiberias harbor. There is no doubt that many generations of fishermen sat there mending their nets and preparing their fishing gear. From there, they sailed to distant fishing sites."

"On the site we can see the remains of a wall built of hewn stones, which runs parallel to the shore. The most interesting remains are five rows of columns that may have supported the pier. The enclosed part of the harbor has to be sought somewhere else."

The city whose history is most bound up with fishermen and the sea is Migdal or Migdal Nunia - "the Tower of the Fishes." Its boatmen were fearless fighters in the revolt against the Romans, and its ships formed the basis for the Jewish

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fleet that faced the Romans in the Kinneret. Reporting on one of his actions against Tiberias, first-century historian Josephus Flavius mentions a fleet of 230 boats that he brought from Migdal to Tiberias.

The remains of Migdal's harbor were found on land belonging to the Franciscan order. The city square and other structures from the ancient city came to light at the same time.

Besides providing a shelter from the waves, the harbor was designed to ward off the strong western winds that blow through the canyon of Nahal Arbel. Migdal's pier is built in two sections: a jetty open to the sea, for calm summer days, and an anchorage for the stormy seas of winter.

The breakwaters of the Kinneret settlements were comprised of boulders, with the spaces between them filled in by smaller stones, broken stone implements, and rows of pillars. The structures required constant upkeep, and the anchorages had to be cleared of silt on a regular basis.

Usually, each anchorage or harbor also had a small pier that was located on the edge of the breakwater or near its outer wall. The external piers enabled the boats to take on passengers without having to enter the harbor itself. Since the shores of the Kinneret do not form natural inlets, the construction of the anchorages required a large investment of time and effort, and their existence attests to the high level of organization of even the smallest settlements.

The most pressing matter in the Kinneret today is its declining level. "The newspaper and radio announcements about the level of the Kinneret again prove people's lack of knowledge on this subject," says Mendel. "There's not just a level. The question is - the level compared to what? The level at what point in time?"

Every morning Mendel telephones the Mekorot water company's measuring and pumping station on the Kinneret shore and asks about the level. Then he updates the graph that is hanging in his office at

Ein Gev's Kinneret Sailing Company. Only after he has performed these two tasks does he go to the kibbutz dining room for breakfast. At the entrance, his fellow kibbutzniks stop him to ask the eternal question: "So, Mendel, what's the level today?"

"There are two people who are the center of attention in the morning: the one who measures the rainfall and the one who measures the sea level," laughs Mendel. "The rain-measurer is Shimon

related to the Kinneret's pumping facilities, anchorages, and lakeside buildings. Any drop below this level requires the government to pay compensation to the parties involved.

The level of the Kinneret as we know it today is not the natural level of the lake. In 1932, when the Deganya Dam was built at the Jordan River's exit from the Kinneret, the lake began to be regulated by human activity.

The Kinneret has many sources: the Jordan River, the rivers of Golan and Galilee, and springs. But it never had more than one exit: the Jordan River. The flow from this exit was always extremely small.

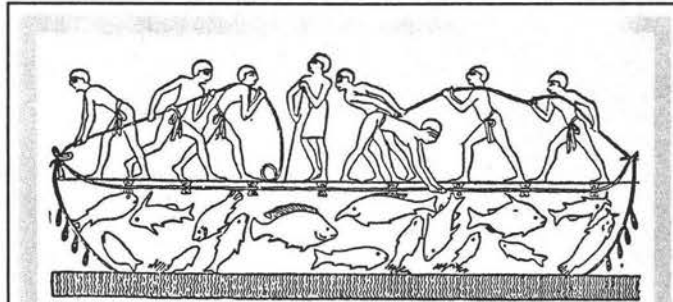
In Israel's characteristically dry summers, more water flows out of the lake than enters it. This differential, together with an evaporation rate of 300 million cubic meters per year, mainly in summer, results in a constant drop in the level until the rains begin in November. In other words, the Kinneret has maximum and minimum levels, with a significant gap between them.

Archaeology, Mendel reports, has helped us to ascertain past water levels. Several years ago, in Capernaum, the Franciscans began to expose the house that is thought to have been inhabited by Simon the Fisherman - and Jesus, during his ministry in the area.

The excavations began in winter. By the end of winter, when the level of the Kinneret was at its highest, the archaeologists had to stop working: the level of the underground water table under the house had risen as well, and the area around the excavations was flooded.

The ancient fishermen of Capernaum, says Mendel, were certainly aware of the fluctuations of the lake. If the Kinneret were at the same level in those days as it is today, they would not have built a house on that site.

Another clue to the early level of the lake comes from the 800-meter-long seaside promenade of ancient Capernaum. Its 2-meter-wide supporting wall was built at a height of -209.25. The 500-meter-long promenade of modern Tiberias stands nearly a meter higher - at



"It will be a surface for seine nets"

(Ezek. 26:5,14)

The seine, in a painting found on the wall of an Egyptian tomb from the sixteenth century BCE. The seine is a net about 250 meters long, 3-4 meters high at its ends, and 8 meters high in its center. Sinkers are attached to its lower edge and floats are affixed to the top. The fishermen spread the seine about 100 meters from the shore, and then pull it in to dry land with the aid of ropes that are tied to its edges.

This fishing technique was very common in the ancient world and it is depicted in paintings in Egyptian tombs from the third millennium BCE. The stone weight that appears on the opposite page is one of the thousands of such objects that Mendel Nun has found on the shores of the Kinneret. These weights were apparently used as sinkers in the seines of the ancient fishermen.

Ya'acobi, and they always ask him how much has fallen. As for me, in summer they ask how much it's fallen and in winter how much it's risen."

Of course, the importance of the Kinneret's level extends far beyond the dining room of Kibbutz Ein Gev. When I visited Mendel on October 8, 1990, the lake surface was 212.70 meters below sea level, or -212.70. The water pumped by Mekorot was lowering it by 2 millimeters per day. Evaporation accounts for a daily decline of 1 centimeter. Thus, by the time the Kinneret reached its minimal level in mid-November, the lake would decline by a further 35-40 centimeters and would pass the -213 line - its lowest level ever.

Besides being a record low, -213 is a red line for the Israeli government. It is the limit that has been set in all planning

-208.30.

Moreover, the storage pool found near the ancient anchorage in Kursi is now covered by the lake in winter. In order to serve its function, it had to have been built on dry land. The bottom of the pool, 209.25 meters below sea level, must have been above the surface of the Kinneret in ancient times.

It is clear, then, that the maximum level of the Kinneret was once lower than today's maximum and could not have been higher than -209.5.

Archaeological remains also point to the lake's minimal level in ancient times. One of the best indicators is the Roman walls of Tiberias. According to both Josephus Flavius and the Talmud, the cities of Tiberias and Migdal had walls on their three inland sides, but no wall facing the sea. The sources refer to "Tiberias, for which the sea is a wall." This was accomplished by extending the side walls into the lake to a depth that would thwart circumvention of the wall by the enemy infantry even when the water was at its lowest level. Josephus reports that Titus had to conquer Migdal with the aid of a cavalry company.

Mendel discovered the remains of the submerged part of the Tiberias wall. The sea floor on which it stood is 212.30 meters below sea level. He reasons that since the average human being is 1.65 meters tall, the minimal water level that was needed to cover the infantrymen was -210.50.

The fluctuations of the water level affected the process of construction of the wall. The workers who built the section that stood on dry land finished their job in the summertime. The experts in undersea construction, who came from Rome together with special cement, waited for the water level to drop to its minimum height. Meanwhile, the water level dropped 15 centimeters, making it necessary to add another meter of wall on the shore before they could begin working underwater.

The underwater construction was done with the aid of a special 2-meter-long wooden mold, reinforced externally by wooden piles that were driven into the sea bed. A special mixture of cement and stones was poured into the mold. Then the mold was removed and advanced to the next position. Six foundations were created from the mold by the time the builders had advanced it to the required level of -212.30. Normal construction methods were used to build the upper part

that protruded from the lake.

In the course of the nearly two millennia that have passed since then, the upper part of the wall was undermined by the action of the waves and its parts were scattered around the area; the foundations, however, have remained implanted in the sea bed. The gaps between the sections can clearly be seen, together with the indentations left by the piles that supported the mold. In fact, portions of the actual piles are still intact.

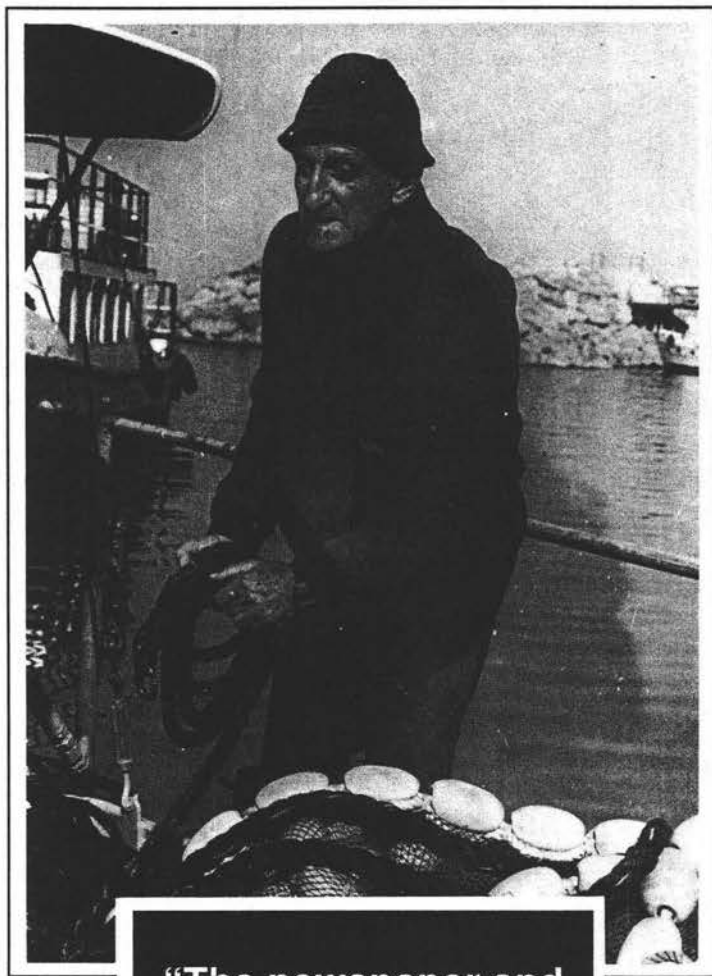
The later conquerors of Tiberias retained their predecessors' defense strategy and the city's towers from later periods also stand 212 meters below sea level.

The ancient harbors that have been discovered around the Kinneret in the past few decades also contribute to our knowledge of the lake's previous water level. The harbors had to have sufficient depth to allow anchorage even when the level of the lake was at its lowest. The maximum depth needed was 9 meters. If the minimal water level of the Kinneret was, as has been calculated, -210.50, then harbors must have been built 211.5 meters below sea level. The harbors of Susita and Migdal stand at exactly that height, and all of the other ancient harbors that have been discovered were built at approximately the same level.

For a better understanding of the fluctuations in the Kinneret's level, it is best to go back to the time when the lake was shaped in its

final form, about 16,000 years ago. At that time, the exit of the Jordan River was near the site of the village of Kinneret.

Since then, however, the lake on the southern shore, comprised of soft alluvial soil, has been constantly eroded by waves. By the time this recession was curbed about twenty years ago by a strong stone embankment, the lake had advanced two kilometers southward. The water found a weak point in the shore, and created a new exit near the site of Kibbutz Degania - 1.5 kilometers east of the old exit. This break



"The newspaper and radio announcements about the level of the Kinneret again prove people's lack of knowledge on this subject."

through seems to have occurred at the beginning of the present millennium.

A Russian pilgrim, Father Daniel, who traveled near the Kinneret in 1106, reported that he had seen two tributaries that extended from the Kinneret and reunited as the Jordan River after about 600 meters. A fourteenth-century Arab traveler offered a similar description.

For centuries, then, the Kinneret had two outlets. The new exit determined the speed of the current and the old one became blocked. In the nineteenth century, travelers still described the ruins of Beit Yerach, a town from the Second Temple period situated between the two exits, as looking like an island in winter. Today the ancient channel is blocked by the embankment of the Tiberias-Tzemach road. The Gan Rachel cemetery of Kibbutz Kinneret is located in one part of the channel, and fish ponds have been dug in another section of it.

As a result of the development of the new exit, the difference in the maximum and minimum level of the Kinneret increased by half a meter - that is, the maximum level became -209.25 and the minimum level became -210.75.

The first measurements of the level of

the Kinneret were made in the 1880s by the German scholar Gottlieb Schumacher and from 1901 to 1910 by David Torrance, a physician from the Scottish Mission Hospital in Tiberias. These were relative measurements, based on water marks left on the tower of the city wall at the northern end of the Tiberias seaside promenade. In 1925, the Palestine Electric Company made the first absolute measurements of the level. All of these measurements yielded similar data about the natural Kinneret: a fluctuation of about 1 meter in normal years, and 1.5 meters in seasons of unusual weather.

When the Deganya Dam was created, the outlet was deepened by 3.5 meters and the height of the gates was set at -214. As a result, the Kinneret's lowest level fell to -212 in summer, and its highest level rose to -209 meters in winter.

The creation of the dam enabled a regulated flow of water to the hydroelectric plant that was being built in Nahariyim, 8 kilometers south of the Kinneret. In winter the plant's turbines were powered by the water of the Yarmuk, and in summer by the water of the Kinneret that had been stored in winter with the aid of its regulated high level.

The maximum and minimum levels were specified in the Electric Company Law granting the company permission to regulate the outflow from the Kinneret, and they were meant to ensure a proper quality of life for those living on the shore. Any deviation meant damage.

The stone promenade of Tiberias was built by the Electric Company in order to prevent flooding in the city. For construction purposes, the level was lowered to -212.34 in December 1934. This was the lowest known level until 1986.

It should be mentioned that in 1975, the base point for such calculations (-209) was raised by 10 centimeters. By today's measures, the level of the lowest tide was -212.44. Today, at the beginning of December 1990, the level is -212.48.

With the activation of the National Water Carrier in 1964, the Kinneret's water levels again changed. The Mekorot water company began to store much of the water. In 1967, the water commissioner issued a bylaw raising the maximum level by 10 centimeters.

Throughout most of the 1960s, in fact, the Mekorot Company tried to maintain the maximum level, even at the risk of flooding. The floods indeed came, at

The Name of the Lake

The Sea of Galilee is known as *yam kinneret* in Hebrew. It is named after a city that once stood on a solitary mountain on the lake's northwestern shore, north of the site of Kibbutz Ginossar. The city of Kinneret was built in the sixteenth century BCE and existed for nine hundred years.

In the Gospels, the lake is called the Sea of Genessaret, for a city on the southern shore, as well as the Sea of Galilee, but the latter name is common only in the European languages. In Arabic, the lake is known as the Sea of Tiberias.

The name Kinneret or Kinnarot is mentioned seven times in the Old Testament, referring in different contexts to either the city, the city's area of influence, or the lake. The city of Kinneret appears in three different spellings on the Egyptian temples, in the list of cities conquered by Thutmose III and others.

Sages of the Talmud were very interested in the meaning of the name Kinneret. They thought it might derive from *kinar*, which is a fruit tree of some kind. Modern scholars have attempted to identify the *kinar*, and some think the word comes from *kinras* Hebrew for "artichoke." Others maintain that *kinar* is the fruit of the acacia tree, which is commonly found around the lake.

Today, it is popularly believed that the name Kinneret comes from the word *kinor* - harp. This interpretation is the result of errors made by the talmudic scribes. In some of the Talmud manuscripts, we find that the scribe confused *kinar* with *kinor*.

Later interpreters enlarged on this error, saying that "the fruit of the city Kinneret was as sweet as the sound of the harp, which pleases its listeners." In recent years, it has been theorized that the name Kinneret derives from the lake's harplike shape.

There is yet another interpretation: The documents found in the ancient city of Ugarit contained the names of 238 gods of the Canaanite pantheon, including the god Kinar and his wife Kineret. According to the Bible, the city of Kinneret was one of the fortresses of the Sidonians. It is possible that these Phoenicians, who worshipped the Canaanite pantheon, brought the god Kinar, to whom they built a temple in the city, and his goddess, Kineret, whose temple was built on the lake shore.

It further emerges that the resemblance between the name of the lake and the word for "harp" may not be merely accidental. In the list of gods that was found in Ugarit, Kinar's name is preceded by the prefix "Is," which means that the name refers to a wooden object. This is not surprising when we consider that some of the Canaanite gods were simply objects taken from a temple. If we remember that the ancient harp was also made out of wood, we might be able to reconcile the name of the lake with the name of the musical instrument.

(The above information was taken from Mendel Nun's monograph, *Hakinneret*, published by Kibbutz Hameuchad, 1977.)

great damage to the shoreline. Winter 1968/9, for example, was very rainy. Mekorot was late in opening the dam, and in January 1969, it lost control of the water level, which rose to a point that was 70 centimeters over the permitted level. The disruption of the balance along the shores led to a new regulation in 1975, authorizing the lowering of the level to -213 meters.

"In the floods, mainly the 1969 flood," Mendel recalls, "entire stretches of beach were swept away and buildings and structures were destroyed. I was evacuated from my house for half a year. The story hasn't ended yet: the wheels of justice turn slowly. They approved compensation for us on less than half of the damages. They estimated the damages at a certain amount and later discovered that real damage was much greater. But what do they want from the Kinneret? It's not to blame. The ones to blame are those responsible for the regulation of the level."

It is hard for Mendel to be angry at the Kinneret. "The Kinneret came into my house and I was angry at it not because it came in but because it didn't come in through the front door, like any wanted guest.

"You can get angry at people, but not at nature. I've been living in this house since 1948. When visitors see the fantastic sunset, they ask me if I still see it. I tell them that every look at a sunset is the first time for me."

Rather than diminishing with the years, Mendel's love for the Kinneret seems to have grown even stronger. Today he no longer goes out on the fishing and excursion boats, but he travels around the country, delivering lectures on the Kinneret to various educational institutions.

Only a few young people from Ein Gev and Ginossar are still ready to spend the cold winter nights on a rocky fishing boat. Even the fishermen of Tiberias are not what they used to be.

"But my mind is on weights at the moment," Mendel informs me, when I try to speak with him about archaeology and water levels. Every morning he makes the rounds of the lake shores on a weight-collecting mission. He has collected over 1,000 ancient weights in the past year, and the drawers of his office, his shelves, the entrance to the office, and the entrance to his house are all overflowing with them.

"They've only been discovered now?" I ask in amazement. "Nobody noticed them," answered Mendel. "The first weights I collected were brought to me by the fishermen. I never thought it was possible to find weights on the shore. A year ago, I explored the harbor of Susita and found a stone with a hole in it. I didn't take it too seriously. On a second visit I again found one.

"And then an important thing happened to me - I lost my hat. I can't function without a hat. You know, a person gets attached to a certain hat, in a certain period, and that was the case with this hat. I combed the length and width of the area in which I had been walking when I lost it. And suddenly I saw more weights, and more and more and more.

"The second time I returned to look for

Every Kinneret settlement, large or small, had a harbor or at least a small anchorage.

my hat I saw more weights. And the same thing happened the third time. Right here, opposite my house. Only on my fourth round of searching did I find my hat - but by then I was already immersed in the matter of the weights."

The weights range from about 30 grams to 2 kilograms. All of them are stones with a hole in them. But the holes are the handiwork of man and the stones were chosen specially for their shape to serve as an anchor or a sinker for a net.

"For over a year, I systematically searched the shores of the Kinneret, following the receding waters, and I found a lot of weights everywhere, especially near the fishing spots and the ancient fishing villages. Here, generations of fishermen sat for on the shore preparing their nets and casting them into the sea.

"Often it happened, as it does today, that the weight is caught between the stones, and then the only alternative is to cut it away. Even more frequently, the fishermen lost their nets in the storms and the weights remained on the lake floor.

"I also look for weights while surveying breakwaters. Today I went from my

home to the kibbutz fish restaurant and found weights. I put the small ones near my home, and left five anchors weighing 5 to 15 kilograms on the beach. I've passed that spot many times, I swim with the kids here, and never once did I notice right below my house, an archaeological treasure slowly coming to light."

There is no literature on the subject of the weights with the holes. Publications on the fishing industry indicate that this day, in various places in the world, stone anchors and weights are used. "Prehistoric man already knew how to bore a hole in limestone or basalt," Mendel comments, "but surprising enough, even though there are many limestone and basalt stones in the Kinneret, the fishermen usually chose the flint stones, which are much harder.

"I haven't yet found out how the fishermen succeeded in boring holes in the flint. The holes themselves are amazing. Sometimes they are as large as 20 centimeters long. Sometimes they were bored from two different angles, with the two holes meeting in the middle of the stone. The holes are sometimes only five millimeters in diameter.

"The smooth edge of the hole, made by the rope that was threaded through it, indicates that the weights were in use for many years and were passed from one generation to the next.

"The large number of the weights proves that they were commonly used on nets that were left in the water for the night. Undoubtedly, the age of the weights is linked to the age of the breakwaters - that is, the Roman-Byzantine period - but there may be even earlier stones among them. We've discovered a new source for researching the history of ancient fishing in the lake.

"I've lived in this house since 1948 and I've been a fisherman since 1942, but I'm ashamed to say that I never noticed the weights before. They are greetings from our ancient fishermen, who left them for me here.

"Now, in my old age, I find great pleasure in exploring the shore. I look at the lake and see the fishing vessels piloted by Ein Gev's third generation, sailing on the Kursi for a night of sardine fishing. When I look down, I discover the beautiful stone weights that were bored by skillful hands - messages from the ancient past that have finally arrived at their destination."