The Dead Sea Scrolls are a collection of 972 texts discovered between 1946 and 1956 at Khirbet Qumran in what was then British Mandate Palestine, and since 1947 known as the West Bank. They were found on the northwest shore of the Dead Sea, from which they derive their name. The texts are of great historical, religious and linguistic significance because they include the earliest known surviving manuscripts of works later included in the Hebrew Bible canon, along with extra-biblical manuscripts which preserve evidence of the diversity of religious thought in late Second Temple Judaism.

The texts are written in Hebrew, Aramaic, Greek, and Nabataean, mostly on parchment but with some written on papyrus and bronze. The manuscripts have been dated to various ranges between 408 BCE and 318 CE. Bronze coins found on the site form a series beginning with John Hyrcanus (135-104 BCE) and continuing until the First Jewish-Roman War (66–73 CE).

The scrolls have traditionally been identified with the ancient Jewish sect called the Essenes, although some recent interpretations have challenged this association and argue that the scrolls were penned by priests in Jerusalem, Zadokites, or other unknown Jewish groups.

The Dead Sea Scrolls are divided into three groups; copies of texts from the Hebrew Bible, which comprise roughly 40% of the identified scrolls, texts from the Second Temple Period like the Book of Enoch, Jubilees, the Book of Tobit, the Wisdom of Sirach, Psalms 152–155, etc., that ultimately were not canonized in the Hebrew Bible, which comprise roughly 30% of the identified scrolls, and sectarian manuscripts (previously unknown documents that shed light on the rules and beliefs of a particular group or groups within greater Judaism) like the Community Rule, the War Scroll, the Pesher on Habakkuk and the The Rule of the Blessing, which comprise roughly 30% of the identified scrolls.
Discovery

Qumran cave 4, where ninety percent of the scrolls were found

The Dead Sea Scrolls were discovered in a series of twelve caves around the site known as Wadi Qumran near the Dead Sea in what is now the West Bank between 1946 and 1956 by the Bedouin people and archaeologists.[8]

Initial discovery (1946–1947)

The initial discovery, by Bedouin shepherd Muhammed Edh-Dhib, his cousin Jum'a Muhammed, and Khalil Musa, took place between November 1946 and February 1947.[9][10] The shepherds discovered 7 scrolls (See Fragment and scroll lists) housed in jars in a cave at what is now known as the Qumran site. John C. Trever reconstructed the story of the scrolls from several interviews with the Bedouin. Edh-Dhib's cousin noticed the caves, but edh-Dhib himself was the first to actually fall into one. He retrieved a handful of scrolls, which Trever identifies as the Isaiah Scroll, Habakkuk Commentary, and the Community Rule, and took them back to the camp to show to his family. None of the scrolls were destroyed in this process, despite popular rumor.[11] The Bedouin kept the scrolls hanging on a tent pole while they figured out what to do with them, periodically taking them out to show people. At some point during this time, the Community Rule was split in two. The Bedouin first took the scrolls to a dealer named Ibrahim 'Ijha in Bethlehem. 'Ijha returned them, saying they were worthless, after being warned that they might have been stolen from a synagogue. Undaunted, the Bedouin went to a nearby market, where a Syrian Christian offered to buy them. A sheikh joined their conversation and suggested they take the scrolls to Khalil Eskander Shahin, "Kando", a cobbler and part-time antiques dealer. The Bedouin and the dealers returned to the site, leaving one scroll with Kando and selling three others to a dealer for GBP7 (US$29 in 2003).[11] The original scrolls continued to change hands after the Bedouin left them in the possession of a third party until a sale could be arranged. (See Ownership)

In 1947 the original seven scrolls caught the attention of Dr. John C. Trever, of the American Schools of Oriental Research (ASOR), who compared the script in the scrolls to that of The Nash Papyrus, the oldest biblical manuscript then known, and found similarities between them. In March the 1948 Arab-Israeli War prompted the move of some of scrolls to Beirut, Lebanon for safekeeping. On 11 April 1948, Miller Burrows, head of the ASOR, announced the discovery of the scrolls in a general press release.
Search for the Qumran caves (1948–1949)

Early in September 1948, Mar brought Professor Ovid R. Sellers, the new Director of ASOR, some additional scroll fragments that he had acquired. By the end of 1948, nearly two years after their discovery, scholars had yet to locate the original cave where the fragments had been found. With unrest in the country at that time, no large-scale search could be undertaken safely. Sellers attempted to get the Syrians to assist in the search for the cave, but he was unable to pay their price. In early 1948, the government of Jordan gave permission to the Arab Legion to search the area where the original Qumran cave was thought to be. Consequently, Cave 1 was rediscovered on 28 January 1949, by Belgian United Nations observer Captain Phillipe Lippens and Arab Legion Captain Akkash el-Zebn.\(^{[13]}\)

Qumran caves rediscovery and new scroll discoveries (1949–1951)

The rediscovery of Cave 1 prompted the initial excavation of the site from 15 February to 5 March 1949 by the Jordanian Department of Antiquities. The excavation was led by Lancaster Harding, director of the Palestine Archaeological Museum, and Roland de Vaux, the President of the Trustees of the museum. The Cave 1 site yielded discoveries of additional Dead Sea Scroll fragments, linen cloth, jars, and other artifacts.\(^{[13]}\)

Excavations of Qumran (1951–1956)

In November 1951, Roland de Vaux and his team from the ASOR began a full excavation of Qumran.\(^{[14]}\) In February 1952, the Bedouin people discovered 30 fragments in what was to be designated Cave 2. These included fragments of Jubilees and Ben Sira written in Hebrew.\(^{[13][14]}\) The following month, the ASOR team discovered Cave 3 and the Copper Scroll. Between September and December 1952 the fragments and scrolls of Caves 4, 5, and 6 were subsequently discovered by the ASOR teams.\(^{[14]}\)

With the monetary value of the scrolls rising as their historical significance was made more public, the Bedouins and the ASOR archaeologists accelerated their search for the scrolls separately in the same general area of Qumran, which was over 1 kilometer in length. Between 1953 and 1956, Roland de Vaux led four more archaeological expeditions in the area to uncover scrolls and artifacts.\(^{[13]}\) The last cave, Cave 11, was discovered in 1956 and yielded the last fragments to be found in the vicinity of Qumran.\(^{[15]}\)

Fragment and scroll lists

The following are lists of the Dead Sea Scrolls from the caves near Qumran:\(^{[16]}\)
Cave 1

The War Scroll, found in Qumran Cave 1.

A portion of the second discovered copy of the Isaiah scroll, 1QIsa b.

Cave 1 was discovered in the winter or spring of 1947. It was first excavated by Gerald Lankester Harding and Roland de Vaux from 15 February to 5 March 1949.[17] In addition to the original seven scrolls, Cave 1 produced jars and bowls whose chemical composition and shape matched vessels discovered at the settlement at Qumran, pieces of cloth, and additional fragments that matched portions of the original scrolls, thereby confirming that the original scrolls came from Cave 1.

The original seven scrolls from Cave 1 are:[18]

- 1QIsa a (the Great Isaiah Scroll, a copy of the Book of Isaiah)
- 1QIsa b (a second copy of Isaiah)
- 1QS (the Community Rule) cf. 4QS a-j = 4Q255-64, 5Q11
- 1QpHab (the Pesher on Habakkuk)
- 1QM (the War Scroll) cf. 4Q491, 4Q493
- 1QH (the Thanksgiving Hymns)
- 1QapGen (the Genesis Apocryphon)

Cave 2

Cave 2 was discovered in February 1952.[19] It yielded 300 fragments from 33 manuscripts, including Jubilees and the Wisdom of Sirach in the original Hebrew.

Cave 3

Cave 3 was discovered on 14 March 1952.[20] The cave yielded 14 manuscripts including Jubilees and the curious Copper Scroll, which lists 67 hiding places, mostly underground, throughout the ancient Roman province of Judea (now Israel). According to the scroll, the secret caches held astonishing amounts of gold, silver, copper, aromatics, and manuscripts.
Caves 4a and 4b

Cave 4 was discovered in August 1952, and was excavated from 22–29 September 1952 by Gerald Lankester Harding, Roland de Vaux, and Józef Milik.[21] Cave 4 is actually two hand-cut caves (4a and 4b), but since the fragments were mixed, they are labeled as 4Q. Cave 4 is the most famous of Qumran caves both because of its visibility from the Qumran plateau and its productivity. It is visible from the plateau to the south of the Qumran settlement. It is by far the most productive of all Qumran caves, producing ninety percent of the Dead Sea Scrolls and scroll fragments (approx. 15,000 fragments from 500 different texts), including 9–10 copies of Jubilees, along with 21 tefillin and 7 mezuzot.

The Damascus Document Scroll, 4Q271D[^1], found in Cave 4

Cave 5

Cave 5 was discovered alongside Cave 6 in 1952, shortly after the discovery of Cave 4. Cave 5 produced approximately 25 manuscripts.[21]

Cave 6

Cave 6 was discovered alongside Cave 5 in 1952, shortly after the discovery of Cave 4. Cave 6 contained fragments of about 31 manuscripts.[21]

Cave 7

Cave 7, along with caves 8 and 9, was one of the only caves that is accessible by passing through the settlement at Qumran. Carved into the southern end of the Qumran plateau, archaeologists excavated cave 7 in 1957.

Cave 7 yielded fewer than 20 fragments of Greek documents, including 7Q2 (the "Letter of Jeremiah" = Baruch 6), 7Q5 (which became the subject of much speculation in later decades),
and a Greek copy of a scroll of Enoch.[26][27][28] Cave 7 also produced several inscribed potsherds and jars.[29]

Dead Sea Scroll fragments 7Q4, 7Q5, and 7Q8 from Cave 7 in Qumran, written on papyrus.

List of groups of fragments collected from Wadi Qumran Cave 7.[24][25]

Cave 8

Cave 8, along with caves 7 and 9, was one of the only caves that is accessible by passing through the settlement at Qumran. Carved into the southern end of the Qumran plateau, archaeologists excavated cave 8 in 1957.

Cave 8 produced five fragments: Genesis (8QGen), Psalms (8QPs), a tefillin fragment (8QPhyl), a mezuzah (8QMez), and a hymn (8QHymn).[20] Cave 8 also produced several tefillin cases, a box of leather objects, tons of lamps, jars, and the sole of a leather shoe.[29]

List of groups of fragments collected from Wadi Qumran Cave 8.[24][25]

Cave 9

Cave 9, along with caves 7 and 8, was one of the only caves that is accessible by passing through the settlement at Qumran. Carved into the southern end of the Qumran plateau, archaeologists excavated cave 9 in 1957.

There was only one fragment found in Cave 9:

Cave 10

In Cave 10 archaeologists found two ostraca with some writing on them, along with an unknown symbol on a grey stone slab:
Cave 11

Cave 11 was discovered in 1956 and yielded 21 texts, some of which were quite lengthy. The Temple Scroll, so called because more than half of it pertains to the construction of the Temple of Jerusalem, was found in Cave 11, and is by far the longest scroll. It is now 26.7 feet (8.15 m) long. Its original length may have been over 28 feet (8.75 m). The Temple Scroll was regarded by Yigael Yadin as "The Torah According to the Essenes". On the other hand, Hartmut Stegemann, a contemporary and friend of Yadin, believed the scroll was not to be regarded as such, but was a document without exceptional significance. Stegemann notes that it is not mentioned or cited in any known Essene writing.\[311\]

Also in Cave 11, an eschatological fragment about the biblical figure Melchizedek (11Q13) was found. Cave 11 also produced a copy of Jubilees.

According to former chief editor of the DSS editorial team John Strugnell, there are at least four privately owned scrolls from Cave 11, that have not yet been made available for scholars. Among them is a complete Aramaic manuscript of the Book of Enoch.\[32\]

List of groups of fragments collected from Wadi Qumran Cave 11:

**Fragments with unknown provenance**

Some fragments of scrolls do not have significant archaeological and provenance records that reveal which designated Qumran cave area they were found in. They are believed to have come from Wadi Qumran caves, but are just as likely to have come from other archaeological sites in the Judaean Desert area.\[33\] These fragments have therefore been designated to the temporary "X" series.

**Origin**

A view of the Dead Sea from a cave at Qumran in which some of the Dead Sea Scrolls were discovered.
There has been much debate about the origin of the Dead Sea Scrolls. The dominant theory remains that the scrolls were the product of a sect of Jews living at nearby Qumran called the Essenes, but this theory has come to be challenged by several modern scholars.

Qumran–Essene Theory

The view among scholars, almost universally held until the 1990s, is the "Qumran–Essene" hypothesis originally posited by Roland Guérin de Vaux and Józef Tadeusz Milik, though independently both Eliezer Sukenik and Butrus Sowmy of St Mark's Monastery connected scrolls with the Essenes well before any excavations at Qumran. The Qumran–Essene theory holds that the scrolls were written by the Essenes, or by another Jewish sectarian group, residing at Khirbet Qumran. They composed the scrolls and ultimately hid them in the nearby caves during the Jewish Revolt sometime between 66 and 68 CE. The site of Qumran was destroyed and the scrolls never recovered. A number of arguments are used to support this theory.

- There are striking similarities between the description of an initiation ceremony of new members in the Community Rule and descriptions of the Essene initiation ceremony mentioned in the works of Flavius Josephus – a Jewish–Roman historian of the Second Temple Period.
- Josephus mentions the Essenes as sharing property among the members of the community, as does the Community Rule.
- During the excavation of Khirbet Qumran, two inkwells and plastered elements thought to be tables were found, offering evidence that some form of writing was done there. More inkwells were discovered in nearby loci. De Vaux called this area the "scriptorium" based upon this discovery.
- Several Jewish ritual baths (Hebrew: *miqvah* = מִקְוָה) were discovered at Qumran, which offers evidence of an observant Jewish presence at the site.
- Pliny the Elder (a geographer writing after the fall of Jerusalem in 70 CE) describes a group of Essenes living in a desert community on the northwest shore of the Dead Sea near the ruined town of 'Ein Gedi.

The Qumran–Essene theory has been the dominant theory since its initial proposal by Roland de Vaux and J.T. Milik. Recently, however, several other scholars have proposed alternative origins of the scrolls.

Christian Origin Theory

Spanish Jesuit Josep O'Callaghan–Martínez has argued that one fragment (7Q5) preserves a portion of text from the New Testament Gospel of Mark 6:52–53. In recent years, Robert Eisenman has advanced the theory that some scrolls describe the early Christian community. Eisenman also attempted to relate the career of James the Just and Paul the Apostle to some of these documents.
Jerusalem Origin Theory

Some scholars have argued that the scrolls were the product of Jews living in Jerusalem, who hid the scrolls in the caves near Qumran while fleeing from the Romans during the destruction of Jerusalem in 70 CE. Karl Heinrich Rengstorff first proposed that the Dead Sea Scrolls originated at the library of the Jewish Temple in Jerusalem. Later, Norman Golb suggested that the scrolls were the product of multiple libraries in Jerusalem, and not necessarily the Jerusalem Temple library. Proponents of the Jerusalem Origin theory point to the diversity of thought and handwriting among the scrolls as evidence against a Qumran origin of the scrolls. Several archaeologists have also accepted an origin of the scrolls other than Qumran, including Yizhar Hirschfeld and most recently Yizhak Magen and Yuval Peleg, who all understand the remains of Qumran to be those of a Hasmonean fort that was reused during later periods.

Qumran–Sectarian Theory

Qumran–Sectarian theories are variations on the Qumran–Essene theory. The main point of departure from the Qumran–Essene theory is hesitation to link the Dead Sea Scrolls specifically with the Essenes. Most proponents of the Qumran–Sectarian theory understand a group of Jews living in or near Qumran to be responsible for the Dead Sea Scrolls, but do not necessarily conclude that the sectarians are Essenes.

Qumran–Sadducean Theory

A specific variation on the Qumran–Sectarian theory that has gained much recent popularity is the work of Lawrence H. Schiffman, who proposes that the community was led by a group of Zadokite priests (Sadducees). The most important document in support of this view is the "Miqsat Ma'ase Ha-Torah" (4QMMT), which cites purity laws (such as the transfer of impurities) identical to those attributed in rabbinic writings to the Sadducees. 4QMMT also reproduces a festival calendar that follows Sadducee principles for the dating of certain festival days.

Physical characteristics

Age

Radiocarbon dating

Parchment from a number of the Dead Sea Scrolls have been carbon dated. The initial test performed in 1950 was on a piece of linen from one of the caves. This test gave an indicative dating of 33 CE plus or minus 200 years, eliminating early hypotheses relating the scrolls to the mediaeval period. Since then two large series of tests have been performed on the scrolls themselves. The results were summarized by VanderKam and Flint, who said the tests give "strong reason for thinking that most of the Qumran manuscripts belong to the last two centuries BCE and the first century CE."
Analysis of handwriting, a path of study known as palaeography, was applied to the text on the Dead Sea Scrolls by a variety of scholars in the field. Major linguistic analysis by Cross and Avigad dates fragments from 225 BCE to 50 CE. These dates were determined by examining the size, variability, and style of the text. The same fragments were later analyzed using radiocarbon date testing and were dated to an estimated range of 385 BCE to 82 CE with a 68% accuracy rate.

Ink and parchment

Shown here are gall powder (top left) and Iron(II) Oxide (bottom left), two of the key ingredients in Iron-Gall Ink, one of the three inks used to make the Dead Sea Scrolls. The Isaiah Scroll, which has been shown to use Iron-Gall Ink, is pictured on the right.

The scrolls were analyzed using a cyclotron at the University of California, Davis, where it was found that two types of black ink were used: iron-gall ink and carbon soot ink. In addition, a third ink on the scrolls that was red in color was found to be made with cinnabar (HgS, mercury sulfide). There are only four uses of this red ink in the entire collection of Dead Sea Scroll fragments. The black inks found on the scrolls that are made up of carbon soot were found to be from olive oil lamps. Gall nuts from oak trees, present in some, but not all of the black inks on the scrolls, was added to make the ink more resilient to smudging common with pure carbon inks. Honey, oil, vinegar and water were often added to the mixture to thin the ink to a proper consistency for writing. In order to apply the ink to the scrolls, its writers used reed pens.

Shown here is a closeup of the ink and text of two of the fragments of the Dead Sea Scrolls. The two fragments, fragments 1 and 2 of 7Q6, are written on papyrus.

The Dead Sea scrolls were written on parchment made of processed animal hide known as vellum (approximately 85.5 - 90.5% of the scrolls), papyrus (estimated at 8.0 - 13.0% of the scrolls), and sheets of bronze composed of about 99.0% copper and 1.0% tin (approximately 1.5% of the scrolls). For those scrolls written on animal hides, scholars with the Israeli Antiquities Authority, by use of DNA testing for assembly purposes, believe that there may be a hierarchy in the religious importance of the texts based on which type of animal was used to create the hide. Scrolls written on goat and calf hides are considered by scholars to be more
significant in nature, while those written on gazelle or ibex are considered to be less religiously significant in nature.\textsuperscript{53}

In addition, tests by the National Institute of Nuclear Physics in Sicily, Italy, have suggested that the origin of parchment of select Dead Sea Scroll fragments is from the Qumran area itself, by using X-ray and Particle Induced X-ray emission testing of the water used to make the parchment that were compared with the water from the area around the Qumran site.\textsuperscript{54}

**Deterioration, storage, and preservation**

Two examples of the pottery that held some of the Dead Sea Scrolls documents found at Qumran.

The Dead Sea Scrolls that were found were originally preserved by the dry, arid, and low humidity conditions present within the Qumran area adjoining the Dead Sea.\textsuperscript{55} In addition, the lack of the use of tanning materials on the parchment of the Dead Sea Scrolls and the very low airflow in the Qumran caves also contributed significantly to their preservation.\textsuperscript{56} Some of the scrolls were found stored in clay jars within the Qumran caves, further helping to preserve them from deterioration. The original handling of the scrolls by archaeologists and scholars was done inappropriately, and, along with their storage in an uncontrolled environment, they began a process of more rapid deterioration than they had experienced at Qumran.\textsuperscript{57} During the first few years in the late 1940s and early 1950s, adhesive tape used to join fragments and seal cracks caused significant damage to the documents.\textsuperscript{57} The Government of Jordan had recognized the urgency of protecting the scrolls from deterioration and the presence of the deterioration among the scrolls.\textsuperscript{58} However, the government did not have adequate funds to purchase all the scrolls for their protection and agreed to have foreign institutions purchase the scrolls and have them held at their museum in Jerusalem until they could be "adequately studied."\textsuperscript{58}

In early 1953, they were moved to the Palestine Archaeological Museum in East Jerusalem and through their transportation suffered more deterioration and damage.\textsuperscript{59} The museum was underfunded and had limited resources with which to examine the scrolls, and, as a result, conditions of the "scrollery" and storage area were left relatively uncontrolled by modern
The museum had left most of the fragments and scrolls lying between window glass, trapping the moisture in with them, causing an acceleration in the deterioration process. During a portion of the conflict during the 1956 Arab-Israeli War, the scrolls collection of the Palestinian Archaeological Museum was stored in the vault of the Ottoman Bank in Amman, Jordan. Damp conditions from temporary storage of the scrolls in the Ottoman Bank vault from 1956 to the Spring of 1957 lead to a more rapid rate of deterioration of the scrolls. The conditions caused mildew to develop on the scrolls and fragments, and some of the fragments were partially destroyed or made illegible by the glue and paper of the manila envelopes in which they were stored while in the vault. By 1958 it was noted that up to 5% of some of the scrolls had completely deteriorated. Many of the texts had become illegible and many of the parchments had darkened considerably.

Until the 1970s, the scrolls continued to deteriorate because of poor storage arrangements, exposure to different adhesives, and being trapped in moist environments. Fragments written on parchment (rather than papyrus or bronze) in the hands of private collectors and scholars suffered an even worse fate than those in the hands of the museum, with large portions of fragments being reported to have disappeared by 1966. In the late 1960s, the deterioration was becoming a major concern with scholars and museum officials alike. Scholars John Allegro and Sir Francis Frank were some of the first to strongly advocate for better preservation techniques. Early attempts made by both the British and Israel Museums to remove the adhesive tape ended up exposing the parchment to an array of chemicals, including "British Leather Dressing," and darkening some of them significantly. In the 1970s and 1980s, other preservation attempts were made that included removing the glass plates and replacing them with cardboard and removing pressure against the plates that held the scrolls in storage; however, the fragments and scrolls continued to rapidly deteriorate during this time.

In 1991, the Israeli Antiquities Authority established a temperature controlled laboratory for the storage and preservation of the scrolls. The actions and preservation methods of Rockefeller Museum staff were concentrated on the removal of tape, oils, metals, salt, and other contaminants. The fragments and scrolls are preserved using acid-free cardboard and stored in solander boxes in the climate-controlled storage area.

Photography and assembly

Since the Dead Sea Scrolls were initially held by different parties during and after the excavation process, they were not all photographed by the same organization nor in their entirety.

**First photographs by the American Schools of Oriental Research (1948)**

The first individual to photograph a portion of the collection was John C. Trever (1916–2006), a biblical scholar and archaeologist, who was a resident for the American Schools of Oriental Research. He photographed three of the scrolls discovered in Cave 1 on 21 February 1948, both on black-and-white and standard color film. Although an amateur photographer, the quality of his photographs often exceeded the visibility of the scrolls themselves as, over the years, the ink of the texts quickly deteriorated after they were removed from their linen wrappings.

**Infrared photography and plate assembly by the Palestinian Archaeological Museum (1952–1967)**

A majority of the collection from the Qumran caves was acquired by the Palestine Archeological Museum. The Museum had the scrolls photographed by Najib Albina, a local Arab photographer trained by Lewis Larsson of the American Colony in Jerusalem. Between 1952 and 1967, Albina documented the five stage process of the sorting and assembly of the scrolls, done by the curator and staff of the Palestine Archeological Museum, using infrared photography. Using a process known today as broadband fluorescence infrared photography, or NIR photography, Najib and the team at the Museum produced over 1,750 photographic plates of the scrolls and fragments. The photographs were taken with the scrolls laid out on animal skin, using large format film, which caused the text to stand out, making the plates especially useful for assembling fragments. These are the earliest photographs of the museum’s collection, which was the most complete in the world at the time, and they recorded the fragments and scrolls before their further decay in storage, so they are often considered the best recorded copies of the scrolls.

**Israel Antiquities Authority and NASA digital infrared imaging (1993–2012)**

A previously unreadable fragment of the Dead Sea Scrolls photographed by the Jet Propulsion Laboratory at NASA in the early 1990s using digital infrared technology. The fragment, translated into English, reads "he wrote the words of Noah."
Beginning in 1993, the United States National Aeronautics and Space Administration used digital infrared imaging technology to produce photographs of Dead Sea Scrolls fragments. In partnership with the Ancient Biblical Manuscript Center and West Semitic Research, NASA’s Jet Propulsion Laboratory successfully worked to expand on the use of infrared photography previously used to evaluate ancient manuscripts by expanding the range of spectra at which images are photographed. NASA used this multi-spectral imaging technique, adapted from its remote sensing and planetary probes, in order to reveal previously illegible text on fragments of the Dead Sea Scrolls. The process uses a liquid crystal tunable filter in order to photograph the scrolls at specific wavelengths of light and, as a result, image distortion is significantly diminished. This method was used with select fragments of the Dead Sea Scrolls to reveal text and details that cameras that take photographs using a larger light spectrum could not reveal. The camera and digital imaging assembly was developed by Greg Berman, a scientist with NASA, specifically for the purpose of photographing illegible ancient texts. On December 18–2012 the first output of this project was launched together with Google on a dedicated site http://www.deadseascrolls.org.il/. The site contains both digitizations of old images taken in the 1950s and about 1000 new images taken with the new NASA technology.

Israel Antiquities Authority and DNA scroll assembly (2006–2012)

Scientists with the Israeli Antiquities Authority have used DNA from the parchment on which the Dead Sea Scrolls fragments were written, in concert with infrared digital photography, to assist in the reassembly of the scrolls. For scrolls written on parchment made from animal hide and papyrus, scientists with the museum are using DNA code to associate fragments with different scrolls and to help scholars determine which scrolls may hold greater significance based on the type of material that was used.

Israel Museum of Jerusalem and Google digitization project (2011–2016, Estimated)

In partnership with Google, the Museum of Jerusalem is working to photograph the Dead Sea Scrolls and make them available to the public digitally, although not placing the images in the public domain. The lead photographer of the project, Ardon Bar-Hama, and his team are utilizing the Alpa 12 MAX camera accompanied with a Leaf Aptus-II back in order to produce ultra-high resolution digital images of the scrolls and fragments. With photos taken at 1,200 megapixels, the results are digital images that can be used to distinguish details that are invisible to the naked eye. In order to minimize damage to the scrolls and fragments, photographers are using a 1/4000th of a second exposure time and UV-protected flash tubes. The digital photography project, estimated in 2011 to cost approximately 3.5 million U.S. dollars, is expected to be completed by 2016.
### Scholarly examination

Scholar Eleazar Sukenik examining one of the Dead Sea Scrolls in 1951.

### Early study by scholars

After most of the scrolls and fragments were moved to the Palestinian Archaeological Museum in 1953, scholars began to assemble them and log them for translation and study in a room that became known as the "Scrollery". [81]

### Language and script

The text of the Dead Sea Scrolls is written in four different languages: Hebrew, Aramaic, Greek, and Nabataean.

<table>
<thead>
<tr>
<th>Language</th>
<th>Script</th>
<th>Percentage of Documents</th>
<th>Centuries of Known Use</th>
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<tbody>
<tr>
<td>Hebrew</td>
<td>Assyrian block script[82]</td>
<td>Estimated 76.0-79.0%</td>
<td>3rd century BCE to present</td>
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<tr>
<td>Hebrew</td>
<td>Cryptic scripts &quot;A&quot; &quot;B&quot; and &quot;C&quot; [83][84][85]</td>
<td>Estimated 0.9%-1.0%[86]</td>
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<tr>
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<td>Paleo-Hebrew script[87]</td>
<td>Estimated 1.0-1.5%[85]</td>
<td>10th century BCE to the 2nd century CE</td>
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<tr>
<td>Biblical Hebrew</td>
<td>Paleo-Hebrew scribal script[87]</td>
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<td>Aramaic square script</td>
<td>Estimated 16.0-17.0%[88]</td>
<td>8th century BCE to present</td>
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<td>Greek uncial script[87]</td>
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<tr>
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<td>Nabataean script[89]</td>
<td>Estimated 0.2%[89]</td>
<td>2nd century BCE to the 4th century CE</td>
</tr>
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</table>
Publication

Scholars assembling and examining the Dead Sea Scrolls fragments in what became known as the "Scrollery" room of the Palestine Archaeological Museum.

Physical publication

Some of the fragments and scrolls were published early. Most of the longer, more complete scrolls were published soon after their discovery. All the writings in Cave 1 appeared in print between 1950 and 1956; those from eight other caves were released in 1963; and 1965 saw the publication of the Psalms Scroll from Cave 11. Their translations into English soon followed. Publication of the scrolls has taken many decades, and delays have been a source of academic controversy. The majority of the scrolls consist of tiny, brittle fragments, which were published at a pace considered by many to be excessively slow. During early assembly and translation work by scholars through the Rockefeller Museum from the 1950s through the 1960s, access to the unpublished documents was severely limited to the editorial committee.

Discoveries in the Judean Desert (1955–2009)

Emanuel Tov (1941-) who was Editor-in-Chief of the Dead Sea Scrolls Publication Project and, as a result, responsible for the publication of 32 volumes of the Discoveries in the Judean Desert series. He also worked to publish a six-volume printed edition with a majority of the non-Biblical Dead Sea Scrolls and make the same volumes available electronically on CD in a collection titled "The Dead Sea Scrolls Reader".

The content of the scrolls was published in a 40 volume series by Oxford University Press published between 1955 and 2009 known as Discoveries in the Judean Desert. In 1952 the Jordanian Department of Antiquities assembled a team of scholars to begin examining, assembling, and translating the scrolls with the intent of publishing them. The initial publication, assembled by Dominique Barthélemy and Józef Milik, was published as Qumran Cave 1 in 1955. After a series of other publications in the late 1980s and early 1990s and with the appointment of the respected Dutch-Israeli textual scholar Emanuel Tov as Editor-in-Chief of the Dead Sea Scrolls Publication Project in 1990 publication of the scrolls accelerated. Tov's
team had published five volumes covering the Cave 4 documents by 1995. Between 1990 and 2009, Tov helped the team produce 32 volumes. The final volume, Volume XL, was published in 2009.


In 1991, researchers at Hebrew Union College in Cincinnati, Ohio, Ben Zion Wacholder and Martin Abegg, announced the creation of a computer program that used previously published scrolls to reconstruct the unpublished texts. Officials at the Huntington Library in San Marino, California, led by Head Librarian William Andrew Moffett, announced that they would allow researchers unrestricted access to the library's complete set of photographs of the scrolls. In the fall of that year, Wacholder published 17 documents that had been reconstructed in 1988 from a concordance and had come into the hands of scholars outside of the International Team; in the same month, there occurred the discovery and publication of a complete set of facsimiles of the Cave 4 materials at the Huntington Library. Thereafter, the officials of the Israel Antiquities Authority agreed to lift their long-standing restrictions on the use of the scrolls.


After further delays, attorney William John Cox undertook representation of an "undisclosed client", who had provided a complete set of the unpublished photographs, and contracted for their publication. Professors Robert Eisenman and James Robinson indexed the photographs and wrote an introduction to A Facsimile Edition of the Dead Sea Scrolls, which was published by the Biblical Archaeology Society in 1991. Following the publication of the Facsimile Edition, Professor Elisha Qimron sued Hershel Shanks, Eisenman, Robinson and the Biblical Archaeology Society for copyright infringement of one of the scrolls, MMT, which he deciphered. The District Court of Jerusalem found in favor of Qimron in September 1993. The Court issued a restraining order, which prohibited the publication of the deciphered text, and ordered defendants to pay Qimron NIS 100,000 for infringing his copyright and the right of attribution. Defendants appealed the Supreme Court of Israel, which approved the District Court's decision, in August 2000. The Supreme Court further ordered that the defendants hand over to Qimron all the infringing copies. The decision met Israeli and international criticism from copyright law scholars.


In November 2007 the Dead Sea Scrolls Foundation commissioned the London publisher, Facsimile Editions Limited, to produce a facsimile edition of The Great Isaiah Scroll (1QIsa), The Order of the Community (1QS), and The Pesher to Habakkuk (1QpHab). The facsimile was produced from 1948 photographs, and so more faithfully represents the condition of the Isaiah scroll at the time of its discovery than does the current condition of the real Isaiah scroll.

Of the first three facsimile sets, one was exhibited at the Early Christianity and the Dead Sea Scrolls exhibition in Seoul, South Korea, and a second set was purchased by the British Library in London. A further 46 sets including facsimiles of three fragments from Cave 4 (now in the collection of the National Archaeological Museum in Amman, Jordan) Testimonia (4Q175),
Pesher Isaiah\(^b\) (4Q162) and Qohelet (4Q109) were announced in May 2009. The edition is strictly limited to 49 numbered sets of these reproductions on either specially prepared parchment paper or real parchment. The complete facsimile set (three scrolls including the Isaiah scroll and the three Jordanian fragments) can be purchased for $60,000.\(^{[98]}\)

The facsimiles have since been exhibited in *Quimrân. Le secret des manuscrits de la mer Morte* at the Bibliothèque Nationale, Paris, France (2010) and *Verbün Domini* at the Vatican, Rome, Italy (2012) and Google

**Digital publication**


The text of nearly all of the non-biblical scrolls has been recorded and tagged for morphology by Dr. Martin Abegg, Jr., the Ben Zion Wacholder Professor of Dead Sea Scroll Studies at Trinity Western University located in Langley, British Columbia, Canada.\(^{[100]}\) It is available on handheld devices through Olive Tree Bible Software - BibleReader, on Macs and Windows via emulator through Accordance with a comprehensive set of cross references, and on Windows through Logos Bible Software and BibleWorks.

**The Dead Sea Scrolls Reader (2005)**

The text of almost all of the non-Biblical texts from the Dead Sea Scrolls was released on CD-ROM by publisher E.J. Brill in 2005.\(^{[101]}\) The 2400 page, 6 volume series, was assembled by an editorial team led by Donald W. Parry and Emanuel Tov.\(^{[102]}\) Unlike the text translations in the physical publication, *Discoveries in the Judean Desert*, the texts are sorted by genres that include religious law, parabiblical texts, calendrical and sapiential texts, and poetic and liturgical works.\(^{[101]}\)

**Israel Antiquities Authority and Google digitization project (2010–2016)**

High-resolution images, including infrared photographs, of some of the Dead Sea scrolls are now available online at the Israel Museum's website.\(^{[103]}\)

On 19 October 2010, it was announced\(^{[104]}\) that Israeli Antiquities Authority (IAA) would scan the documents using multi-spectral imaging technology developed by NASA to produce high-resolution images of the texts, and then, through a partnership with Google, make them available online free of charge, on a searchable database and complemented by translation and other scholarly tools. The first images, which according to the announcement could reveal new letters and words,\(^{[104]}\) are expected to be posted online in the few months following the announcement, and the project is scheduled for completion within five years. According to IAA director Pnina Shor, "from the minute all of this will go online there will be no need to expose the scrolls anymore",\(^{[104]}\) referring to the dark, climate-controlled storeroom where the manuscripts are kept when not on display.\(^{[104]}\)
On 25 September 2011 the Israel Museum Digital Dead Sea Scrolls this site went online. Google and the Israel Museum teamed up on this project, allowing users to examine and explore these most ancient manuscripts from Second Temple times at a level of detail never before possible. The new website gives users access to searchable, high-resolution images of the scrolls, as well as short explanatory videos and background information on the texts and their history. As of May 2012, five complete scrolls from the Israel Museum have been digitized for the project and are now accessible online. These include the Great Isaiah Scroll, the Community Rule Scroll, the Commentary on Habakkuk Scroll, the Temple Scroll, and the War Scroll. All five scrolls can be magnified so that users may examine texts in detail.

**Biblical significance**

Before the discovery of the Dead Sea Scrolls, the oldest Hebrew language manuscripts of the Bible were Masoretic texts dating to the 10th century, such as the Aleppo Codex. (Today, the oldest known extant manuscripts of the Masoretic Text date from approximately the 9th century.) The biblical manuscripts found among the Dead Sea Scrolls push that date back a millennium to the 2nd century BCE. Before this discovery, the earliest extant manuscripts of the Old Testament were manuscripts such as Codex Vaticanus Graecus 1209 and Codex Sinaiticus (both dating from the 4th century) that were written in Greek.

According to *The Oxford Companion to Archaeology*:

The biblical manuscripts from Qumran, which include at least fragments from every book of the Old Testament, except perhaps for the Book of Esther, provide a far older cross section of scriptural tradition than that available to scholars before. While some of the Qumran biblical manuscripts are nearly identical to the Masoretic, or traditional, Hebrew text of the Old Testament, some manuscripts of the books of Exodus and Samuel found in Cave Four exhibit dramatic differences in both language and content. In their astonishing range of textual variants, the Qumran biblical discoveries have prompted scholars to reconsider the once-accepted theories of the development of the modern biblical text from only three manuscript families: of the Masoretic text, of the Hebrew original of the Septuagint, and of the Samaritan Pentateuch. It is now becoming increasingly clear that the Old Testament scripture was extremely fluid until its canonization around A.D. 100.

At the time of their writing the area was transitioning between the Greek Macedonian Empire and Roman dominance as Roman Judea. The Jewish qahal (society) had some measure of autonomy following the death of Alexander and the fracturing of the Greek Empire among his successors. The country was long called Ιουδαία or Judæa at that time, named for the Hebrews that returned to dwell there, following the well-documented diaspora. The majority of Jews never actually returned to Israel from Babylon and Persia according to the Talmud, oral and archeological evidence.

**Biblical books found**

There are 225 Biblical texts included in the Dead Sea Scroll documents, or around 22% of the total, with deuterocanonical books the number increase to 235. The Dead Sea Scrolls
contain parts of all but one of the books of the Tanakh of the Hebrew Bible and the Old Testament protocanon. They also include four of the deuterocanonical books included in Catholic and Eastern Orthodox Bibles: Tobit, Ben Sirach, Baruch 6, and Psalm 151. The Book of Esther has not yet been found and scholars believe Esther is missing because, as a Jew, her marriage to a Persian king may have been looked down upon by the inhabitants of Qumran, or because the book has the Purim festival which is not included in the Qumran calendar. Listed below are the sixteen most represented books of the Bible found among the Dead Sea Scrolls in the 1970s, including the number of translatable Dead Sea texts that represent a copy of scripture from each Biblical book:

<table>
<thead>
<tr>
<th>Book</th>
<th>Number found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psalms</td>
<td>39</td>
</tr>
<tr>
<td>Deuteronomy</td>
<td>33</td>
</tr>
<tr>
<td>1 Enoch</td>
<td>25</td>
</tr>
<tr>
<td>Genesis</td>
<td>24</td>
</tr>
<tr>
<td>Isaiah</td>
<td>22</td>
</tr>
<tr>
<td>Jubilees</td>
<td>21</td>
</tr>
<tr>
<td>Exodus</td>
<td>18</td>
</tr>
<tr>
<td>Leviticus</td>
<td>17</td>
</tr>
<tr>
<td>Numbers</td>
<td>11</td>
</tr>
<tr>
<td>Minor Prophets</td>
<td>10</td>
</tr>
<tr>
<td>Daniel</td>
<td>8</td>
</tr>
<tr>
<td>Jeremiah</td>
<td>6</td>
</tr>
<tr>
<td>Ezekiel</td>
<td>6</td>
</tr>
<tr>
<td>Job</td>
<td>6</td>
</tr>
<tr>
<td>1 &amp; 2 Samuel</td>
<td>4</td>
</tr>
<tr>
<td>Sirach</td>
<td>1</td>
</tr>
<tr>
<td>Tobit</td>
<td>Fragments</td>
</tr>
</tbody>
</table>

Non-biblical books

The majority of the texts found among the Dead Sea Scrolls are non-biblical in nature and were thought to be insignificant for understanding the composition or canonization of the Biblical books, but a different consensus has emerged which sees many of these works as being collected by the Essene community instead of being composed by them. Scholars now recognize that some of these works were composed earlier than the Essene period, when some of the Biblical books were still being written or redacted into their final form.
Museum exhibitions and displays

Temporary public exhibitions

Small portions of the Dead Sea Scrolls collections have been put on temporary display in exhibitions at museums and public venues around the world. The majority of these exhibitions took place in 1965 in the United States and the United Kingdom and from 1993 to 2011 in locations around the world. Many of the exhibitions were co-sponsored by either the Jordanian government (pre-1967) or the Israeli government (post-1967). Exhibitions were discontinued after 1965 due to the Six-days War conflicts and have slowed down in post-2011 as the Israeli Antiquities Authority works to digitize the scrolls and place them in permanent cold storage.

Individuals examining part of the Israeli Antiquities Authority's Dead Sea Scrolls collection on display at the Shrine of the Book, a wing of the Israel Museum in Jerusalem.

Long-term museum exhibitions

Display at the Shrine of the Book at the Israel Museum, Jerusalem

Since its completion in April 1965,[137] the majority of the Dead Sea Scrolls collection has been moved to the Shrine of the Book, a part of the Israel Museum, located in Jerusalem. The museum falls under the auspices of the Israel Antiquities Authority, an official agency of the Israeli government. The permanent Dead Sea Scrolls exhibition at the museum features a reproduction of the Great Isaiah Scroll, surrounded by reproductions of other famous fragments that include Community Rule, the War Scroll, and the Thanksgiving Psalms Scroll.[138][139]

Display at the Jordan Museum, Amman, Jordan

Some of the Dead Sea Scrolls collection held by the Jordanian government prior to 1967 was stored in Amman rather than at the Palestinian Archaeological Museum in East Jerusalem. As a consequence, that part of the collection remained in Jordanian hands under their Department of Antiquities. Parts of this collection are anticipated to be on display at the Jordan Museum in Amman after the documents move. They were moved there in between June 2011 and August 2011 from the National Archaeological Museum of Jordan.[140] Among the display items are artifacts from the Qumran site and the Copper Scroll.
Ownership

Past ownership

Advertisement in the *Wall Street Journal* dated 1 June 1954 for four of the "Dead Sea Scrolls."

Arrangements with the Bedouin left the scrolls in the hands of a third party until a profitable sale of them could be negotiated. That third party, George Isha'ya, was a member of the Syrian Orthodox Church, who soon contacted St. Mark's Monastery in the hope of getting an appraisal of the nature of the texts. News of the find then reached Metropolitan Athanasius Yeshue Samuel, better known as Mar Samuel. After examining the scrolls and suspecting their antiquity, Mar Samuel expressed an interest in purchasing them. Four scrolls found their way into his hands: the now famous *Isaiah Scroll* (1QIsa\(^a\)), the *Community Rule*, the *Habakkuk Pesher* (a commentary on the book of Habakkuk), and the *Genesis Apocryphon*. More scrolls soon surfaced in the antiquities market, and Professor Eleazer Sukenik and Professor Benjamin Mazar, Israeli archaeologists at Hebrew University, soon found themselves in possession of three, *The War Scroll*, *Thanksgiving Hymns*, and another, more fragmented, Isaiah scroll (1QIsa\(^b\)).

Four of the Dead Sea Scrolls went up for sale eventually, in an advertisement in the 1 June 1954, *Wall Street Journal*. On 1 July 1954, the scrolls, after delicate negotiations and accompanied by three people including the Metropolitan, arrived at the Waldorf-Astoria Hotel in New York. They were purchased by Professor Mazar and the son of Professor Sukenik, Yigael Yadin, for $250,000, approximately $2.14 million in 2012, and brought to Jerusalem.\[141\]

Current ownership

Most of the Dead Sea Scrolls collection is currently under the ownership of the Government of the state of Israel, and housed in the *Shrine of the Book* on the grounds of the *Israel Museum*. This ownership is contested by both Jordan and Palestine.
A list of known ownership of Dead Sea Scroll fragments:

<table>
<thead>
<tr>
<th>Claimed Owner</th>
<th>Year Acquired</th>
<th>Number of Fragments/Scrolls Owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azusa Pacific University[^142]</td>
<td>2009</td>
<td>5</td>
</tr>
<tr>
<td>Oriental Institute at the University of Chicago[^143]</td>
<td>1956</td>
<td>1</td>
</tr>
<tr>
<td>Southwestern Baptist Theological Seminary[^144]</td>
<td>2009; 2010; 2012</td>
<td>8</td>
</tr>
<tr>
<td>Rockefeller Museum - Government of Israel[^145][^146]</td>
<td>1967</td>
<td>&gt; 15,000</td>
</tr>
<tr>
<td>The Schøyen Collection owned by Martin Schøyen[^147]</td>
<td>1980; 1994; 1995</td>
<td>60</td>
</tr>
</tbody>
</table>

**Ownership disputes**

The official ownership of the Dead Sea Scrolls is disputed among the Hashemite Kingdom of Jordan, the State of Israel, and the Palestinian Authority. The debate over the Dead Sea Scrolls stems from a more general Israeli-Palestinian conflict over land and state recognition.

<table>
<thead>
<tr>
<th>Parties Involved</th>
<th>Party Role</th>
<th>Explanation of Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan</td>
<td>Disputant; Minority Owner</td>
<td>Alleges that the Dead Sea Scrolls were stolen from the Palestinian Archaeological Museum, which was operated by Jordan from 1966 until the Six-Day War when advancing Israeli forces took control of the Museum and that they fall under the rules of the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict[^149] Jordan regularly demands their return and petitions third-party countries that host the scrolls to return them to Jordan instead of to Israel, claiming they have legal documents that prove Jordanian ownership of the scrolls.[^150]</td>
</tr>
<tr>
<td>Israel</td>
<td>Disputant; Current Majority Owner</td>
<td>After the Six-Day War Israel seized the scrolls and moved them to the Shrine of the Book in the Israel Museum. Israel refutes Jordan's claim and states that they never lawfully possessed the scrolls since it was an unlawful occupier of the museum and region.[^151][^152][^153]</td>
</tr>
<tr>
<td>Palestinian Authority</td>
<td>Disputant</td>
<td>The Palestinian Authority also holds a claim to the scrolls.[^154]</td>
</tr>
<tr>
<td>Canada</td>
<td>Neutral Exhibition Host</td>
<td>In 2009, a part of the Dead Sea Scrolls collection held by the Israeli Antiquities Authority was moved and displayed at the Royal Ontario Museum in Toronto, Canada. Both</td>
</tr>
</tbody>
</table>
Palestine and Jordan petitioned the international community, including the United Nations, for the scrolls to be seized under disputed international law. Ottawa dismissed the demands and the exhibit continued, with the scrolls returning to Israel upon its conclusion.

Under Resolution 181 (II), Jerusalem, in particular East Jerusalem, that is currently home to the Rockefeller Museum that holds the scrolls, is part of a "Special International Regime for the City of Jerusalem" that is supposed to be administered by the United Nations, further complicating matters. East Jerusalem was under Jordanian occupation from 1948 to 1967 and has been under Israeli occupation since 1967.

References

Notes

16. ^ name="Vermes 1998"
27. ^ Muro, Ernest A., "The Greek Fragments of Enoch from Qumran Cave 7 (7Q4, 7Q8, &7Q12 = 7QEn gr = Enoch 103:3–4, 7–8)," Revue de Qumran 18 no. 70 (1997).
28. ^ Puech, Émile, "Sept fragments grecs de la Lettre d'Hénoch (1 Hén 100, 103, 105) dans la grotte 7 de Qumrân (= 7QHén gr)," Revue de Qumran 18 no. 70 (1997).


100. ^ Retrieved 13 June 2012.


103. ^ The Digital Dead Sea Scrolls


110. ^ Antiquities of the Jews, Josephus first part of the sentence, Book of Lamentations later half of the sentence

111. ^ References in the Talmud to entirely Jewish cities in what is today Iraq, such as Sura and Pumpudethea where the Babylonian Talmud was later writ, archeologists found evidence of Babylonian recognition of the unified Jewish societies of ancient Babylon, exiled from smoldering Jerusalem.

112. ^ Cardinal O'Connor stated in an Easter and repeated in a Good Friday address before Saint Patrick's Cathedral, "many Jews were not even close enough to make the pilgrimage to Judea, by the time of the Savior.".


Bibliography

- Davies, A. Powell, The Meaning of the Dead Sea Scrolls. (Signet, 1956.)
• Khabbaz, C., "Les manuscrits de la mer Morte et le secret de leurs auteurs", Beirut, 2006. (Ce livre identifie les auteurs des fameux manuscrits de la mer Morte et dévoile leur secret).
• Maier, Johann, *The Temple Scroll*, [German edition was 1978], (Sheffield:JSOT Press [Supplement 34], 1985).
• Muro, E. A., "The Greek Fragments of Enoch from Qumran Cave 7 (7Q4, 7Q8, &7Q12 = 7QEn gr = Enoch 103:3-4, 7-8)." Revue de Qumran 18, no. 70 (1997): 307, 12, pl. 1.

Qimron, Elisha, *The Hebrew of the Dead Sea Scrolls*, Harvard Semitic Studies, 1986. (This is a serious discussion of the Hebrew language of the scrolls.)


