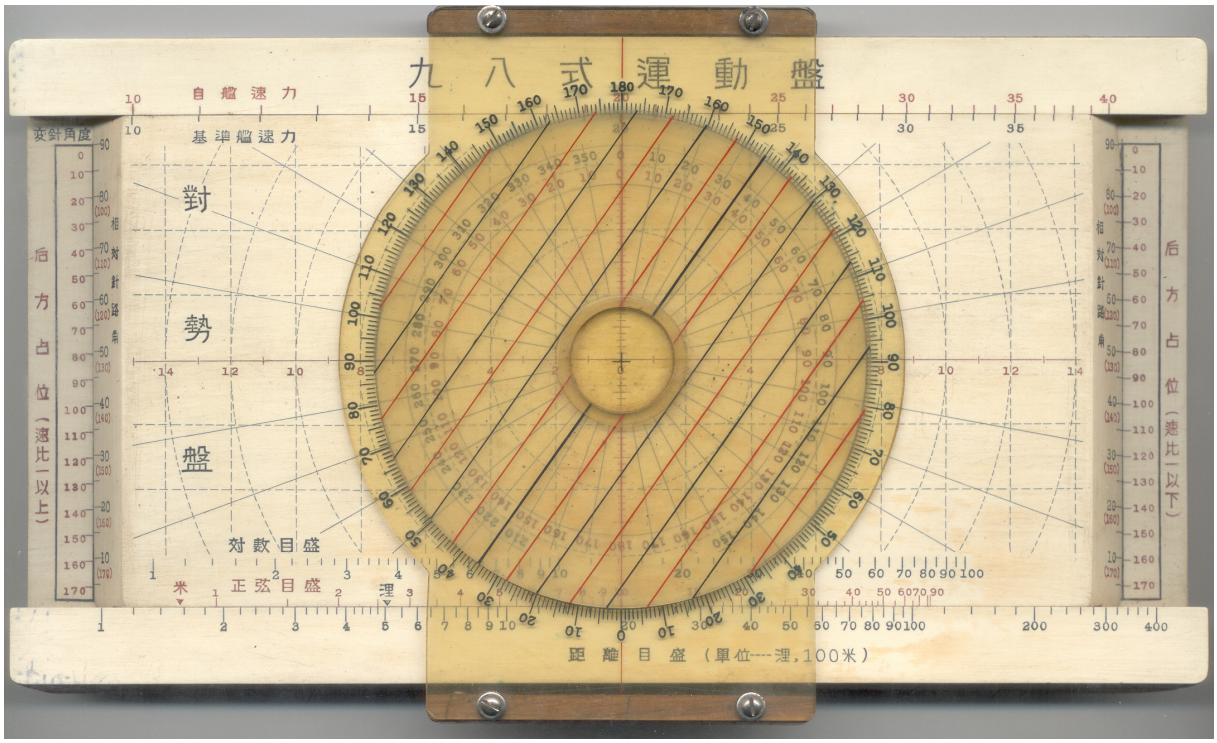
Sun Hemmi Japanese Navy Type 98 Movement board

Ronald van Riet

Overall Picture



Purpose of the Slide Rule

The purpose of this board is not completely known. The scales and lay-out make it probable that it was used for convoy manoeuvring, intercepting enemy ships or for gunnery ranging for warships.

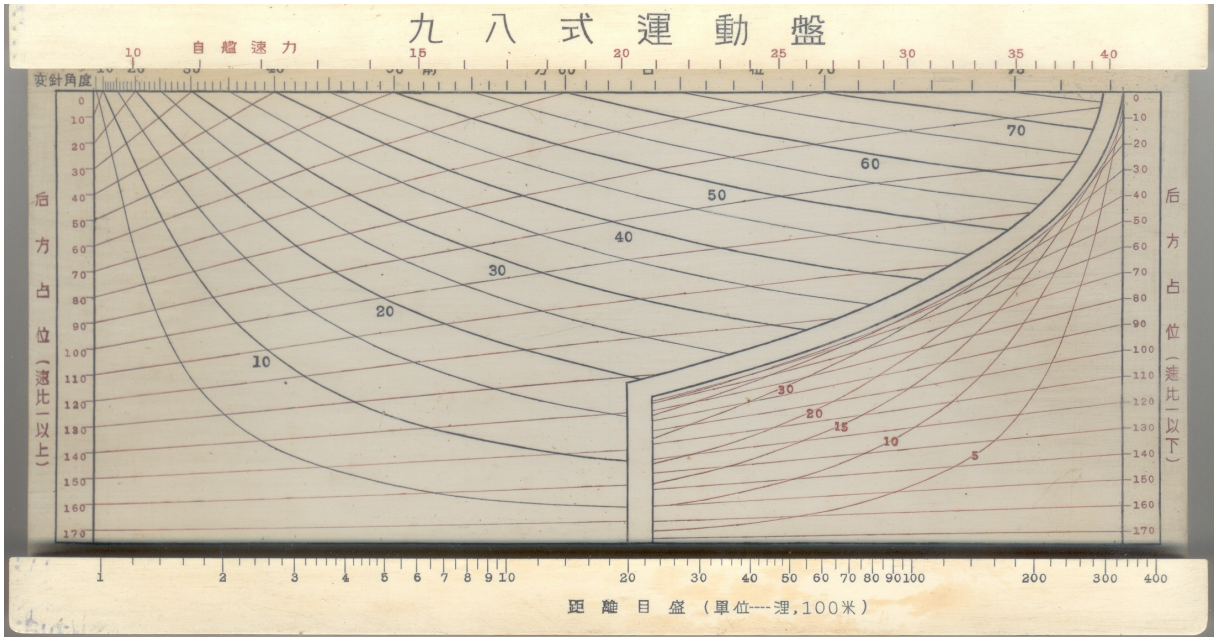
Dimensions:

- **Base:** 185 mm * 99 mm * 15 mm.
- **Slide:** 163 mm * 75 mm * 8 mm.
- **Cursor:** 60 mm * 109 mm * 1 mm.
  The circular part has a diameter of 97 mm; the rotating circle 87 mm.

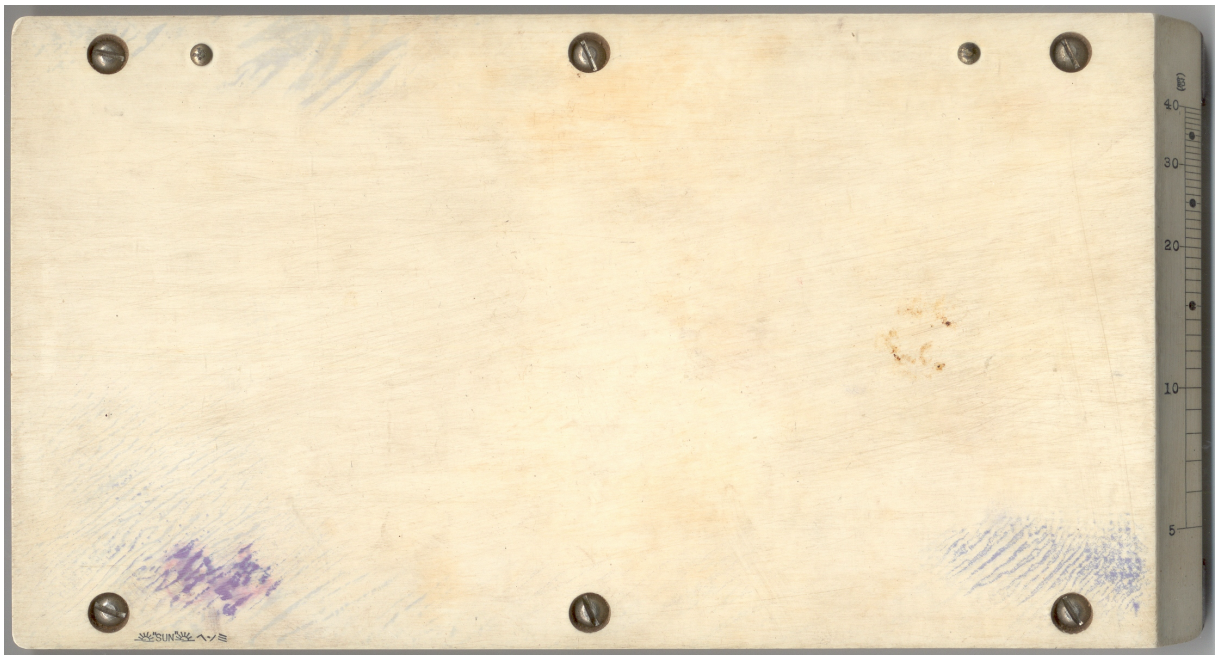
Material:

- **Base:** mahogany base with plastic like laminate.
- **Slide:** mahogany base with plastic like laminate.
- **Cursor**: Perspex with mahogany runners.

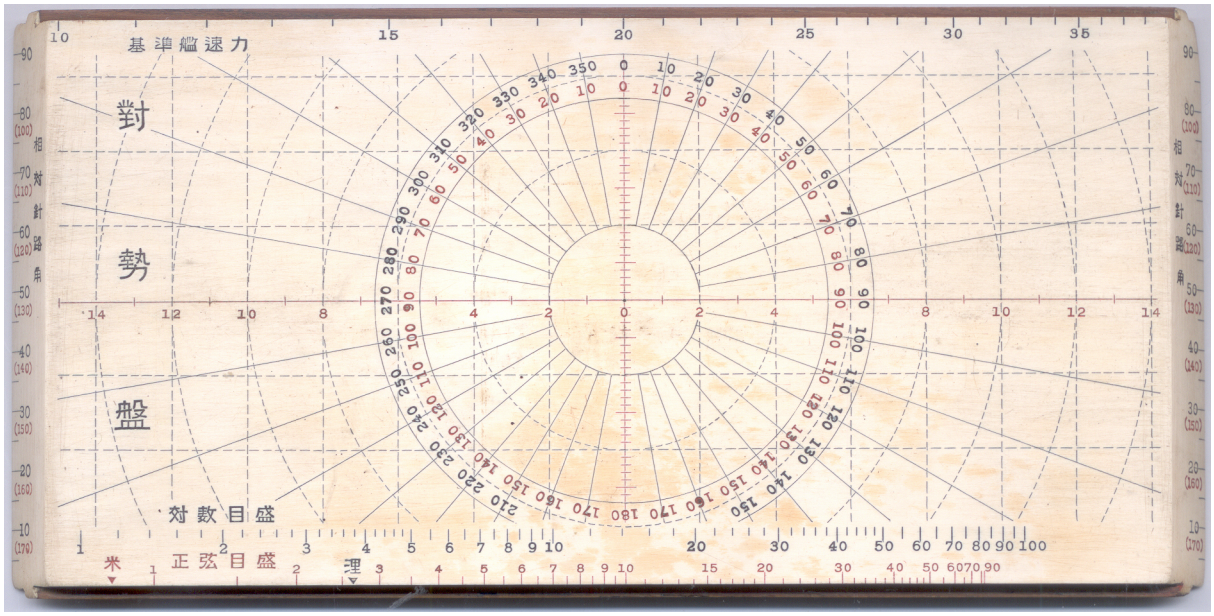
Layout and scales:



- **Base**:
  - Top:
    Title: “Type 98 Movement Board”
    Log scale from 10 – 40 labelled “Own Speed”
  - Bottom:
    Log scale from 1 – 400 labelled “Distance (Unit – nm, 100 m)
  - Centre (recessed):
    - Top:
      Antilog scale from 10 – 75
      “intercept angle” (probably)
      “position before”
    - Left:
      Linear scale reading from 0 (top) to 170 (bottom) in multiples of 10
      “position after (speed ratio greater than 1)”
    - Right:
      Linear scale reading from 0 (top) to 170 (bottom) in multiples of 10
      “position after (speed ratio less than 1)”
    - Centre:
      Two areas with curves, related to the left and right scales respectively; the curves are to be read against the left and right edges of the slide.

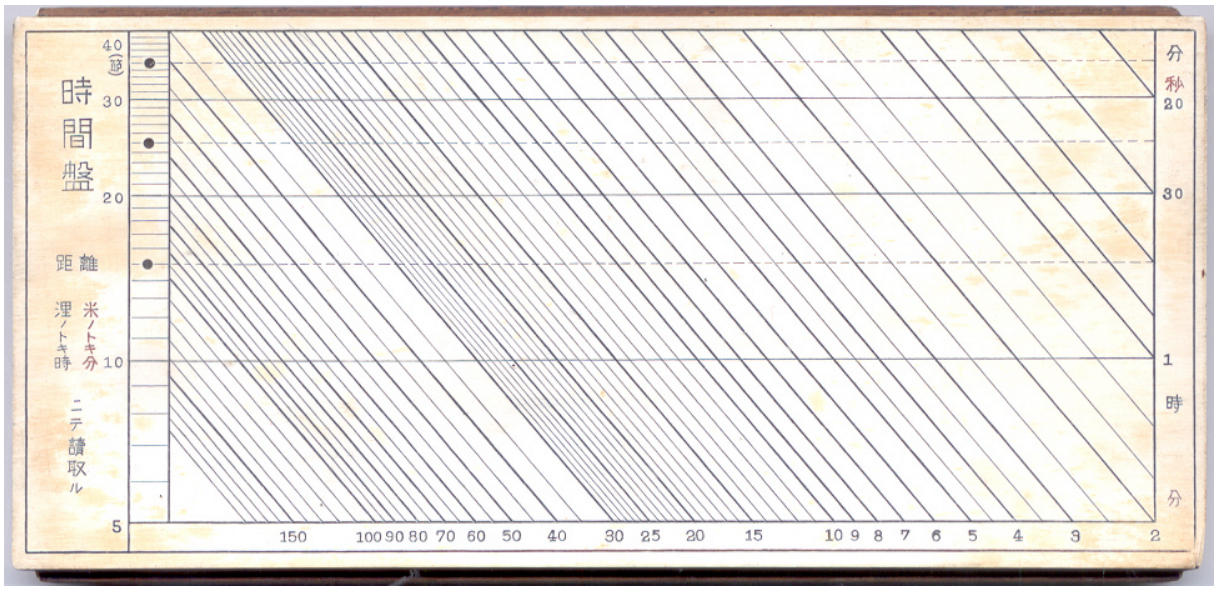


- **Back of base:**
  - Bottom:
    Sun logo between two rising suns and “Hemmi” in Katakana, consistent with a manufacturing date around 1940.
  - Right:
    Log scale from 5 to 40 with minor marks at each unit and major marks at each decade; to be used in combination with the rear of the slide.



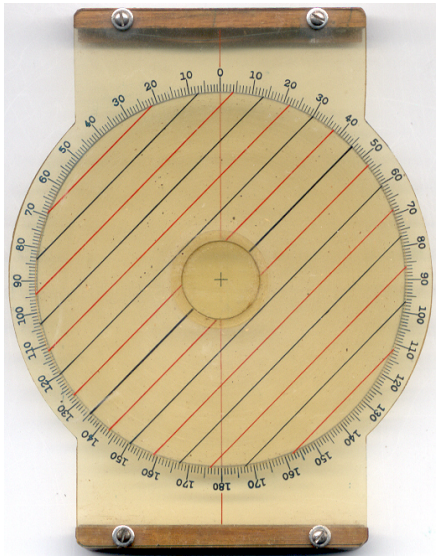
- **Slide (front):**
  - Top:
    Log scale from 10 to 38 labelled “speed of reference ship”
  - Bottom:
    Log sine scale from 1 to 90 degrees labelled “sine scale”
    Log scale from 1 to 100 labelled “log scale”; gauge mark at 2.62 marked “nautical mile”, gauge mark at 0.81, marked “meter”, to be used in converting m/s and knots (nm/hr).

- Centre:
  Compass rose numbering 0 – 170 degrees clockwise and counter clockwise and 0 –360 degrees clockwise; lines radiating at each 10 degree interval; probably used in combination with the cursor to determine relative position between own ship and target ship (comparable to wind triangle calculations in aviation dead reckoning computers)
  Additional text at left, three Kanji characters, translation unknown; probably very specialized jargon, a Japanese friend has not been able to translate; very likely related to the use of the centre section with the cursor.
- Left:
  Linear scale in degrees running from 5 (bottom) to 90 (top) and back to 175 (bottom), labelled “relative course angle”
- Right:
  Linear scale in degrees running from 5 (bottom) to 90 (top) and back to 175 (bottom), labelled “relative course angle”



- **Slide (rear):**
  - Left:
    Log scale from 5 (bottom) to 40 (top)
    Text:
    “Time Board”
    “Distance”
    “Read numbers in hours when using nautical miles, in minutes when using meters”
  - Right:
    Log scale from 10 minutes/seconds (top) to 2 hours/minutes (bottom), labelled “minute / second” (top) “hour / minute” (bottom)
  - Bottom:
    Reverse log scale from 2 (right) to 200 (left) (continuation of right scale)
  - Centre:
    Probably a nomogram for T/S/D calculations to be used together with the right edge of the rear of the base.

- **Cursor:**
  - Single red vertical line.
  - Compass rose running 0 – 180 degrees in both directions
  - Rotating circle with parallel lines, presumably used in combination with the compass rose and radial lines on the front of the slide to determine relative position.



Remarks:

- This is technically not a one-off, in the sense that it was produced in quantity but its rarity and interesting layout has prompted me to include it anyway.
- When the Japanese Navy ordered equipment for mass production, it allocated designations consisting of a number derived from the year and the function of the equipment. The number consisted of the last two digits of the year according to the Kouki calendar in which the western year 1938 was the year 2598, hence the designation of Type 98 Movement Board. In Kouki 2600, the system reverted to a single digit 0, hence the Type 0 carrier-based fighter (the infamous "Zero").

Designer: No information

Manufacturer: Sun