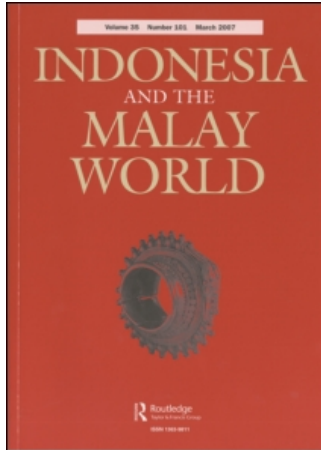


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REMARKS ON THE TERMINOLOGY OF BOATBUILDING AND SEAMANSHIP IN SOME LANGUAGES OF SOUTHERN SULAWESI

HORST LIEBNER

Indonesia is an archipelago comprising more than 13,000 islands, and the sea is its natural way of communication. Spice-shipping in historical times as well as today's economic efforts depend on sea transport – and this, still in recent times, is done to a considerable degree in native craft. The people sailing these boats come from several traditional centres of boatbuilding and shipping all around Indonesia, some of them being small islands without local resources (e.g. the islands of Sangir and Talaud between Sulawesi and the Philippines), others whole coasts inhabited by ethnic groups especially renowned as daring seafarers – like the Madurese from the island of the same name north of Java. For the present purpose I will restrict myself to the southern parts of Sulawesi, the origin of Indonesia's best-known sailors. These comprise the ethnic groups of the Makassarese, Konjo, Buginese, and Mandar in the modern province of Sulawesi Selatan; as far as the seafaring communities named "Butonese" by the sources¹ are concerned, I had to realise from my observations that only some of the *suku* living on these islands are making their living on the sea. For anthropological and linguistic reasons I will have to introduce some boundaries not yet considered, dividing the "Butonese" into the language groups of Wolio, Siompu/Muna, Cia-Cia, and the Tukang Besi Islands (see Fig. 1).

The craft sailed by these people today (see Fig. 2) are – in general – of two distinct types: the *pinisi*-schooners, seen everywhere in Indonesia's sailing ship harbours, and a smaller sloop-rigged boat called *lambo*. Actually Indonesian sailing vessels are classified in two ways, i.e. hull shape and the rig used. While the word *pinisi* refers to the schooner-rig on standing gaffs, the hull could be anything between a traditional sharp-ended form and a European square-sterned design; the "traditional" one (we will have to say something about traditions further on) would be what is called a *palari* in most of the languages of South Sulawesi. Before the last two decades, when motorization cut down the mizzen of most of the *pinisi* still in operation, these ships would have used a set of eight sails, consisting of three foresails on a long bowsprit, a mainsail and a mizzen on standing gaffs, two topsails and a staysail on the mizzenmast's forestay, quite obviously a rough copy of the European schooner of the last century. She would have had a loading capacity of something between 70 to 150 tons, and – if the monsoon was good enough – sail from Ujung Pandang to Surabaya on Java in about three days. The big gaff-rigged ships which can be seen today in Indonesia's harbours load up to 300 tons and are driven by rather small engines; they are still built by traditional techniques at several quite far-off places in the Archipelago, namely in South-East Kalimantan and on the southern shores of Sulawesi. Recent regulations confine their activities to several "routes" centred on the main seaports of Indonesia, and most ships seem to be in use on circular runs between Java and Sumatera or Sulawesi/Kalimantan.

The second type mentioned, the *lambo*, is a small sloop-rigged boat which would be called a cutter in Europe. Rig and hull are "modern": while the sloop-rig began to make its appearance at the beginning of this century as rigging of yachts, sailing lighters, and small trading ships in the vicinity of European settlements, its diffusion to the east of Indonesia began somewhere around 1930, changing from

sliding gaffs to the more convenient gunter or Bermuda-rig in the last three decades. The hull has a straight stem and stern-posts set at an angle on the keel and, in most cases, a square-stern design with a central rudder that reminds one of the classical European techniques of small working-boat construction – differing from a *palari*-hull, which has curved stems and a sharp stern towered by a poop-deck projecting far over the aft, using lateral rudders fixed on a stout construction of rudder beams on the sides of the poop. A *lambo* seldom carries a load of more than 40 tons, and the rare bigger vessels would normally use two masts. The sloop-rig itself should be termed *nade*, but today *lambo* is the general synonym for small, one-masted sailing traders using a centre-rudder, be they built on a sharp or square-sterned hull. These boats still do not use engines and are engaged in small-scale trading ventures all over the eastern parts of the Archipelago, sometimes calling at ports as far west as Singapore.

Smaller craft in Sulawesi use several types of rig; here I will confine myself to the tilted rectangular sail (*layar tanja*) still seen on some smaller trading and offshore fishing vessels from South Sulawesi. It had been the rig of the Makassar and Bugis fleets engaged in the monsoon trade, and is one of Indonesia's indigenous riggings, carved in the Borobudur reliefs as well as described by the first European observers; its Sulawesi type of the last century is drawn in Matthes' *Ethnographische atlas* and described by Wallace, who travelled on a Buginese vessel on his trip to Aru. A recent experiment with a traditionally constructed boat on a commemorative voyage on the traces of the Makassarese trepang fisheries in the last three centuries on Australia's northern coast proved the capabilities of these ships. An early description – which will actually introduce us to the area of main field research – is found in an eighteenth century travel-book.²

“The men of *Bera* are, general, good warriors, both on sea and land; the richest among them are merchants; the others employ themselves in building proas They build their proas, which they call *paduakans* very tight, by dowelling the planks together, and putting the bark of a certain tree between, which swells, and fit timbers to the planks, as at Bombay, but do not rabbet, as it is called, the planks, as it is done there. In Europe we build reversely; we set up the timbers first, and fit the planks to them afterwards. They are bigotted to old models; the largest never exceed fifty tons; they have their bow lowered, or cut down, in a very awkward manner, so as to be often under water; a bulk head is raised a good way abaft the stem, to keep off the sea. They have a tripod mast, with a high pointed sail; the tripod mast is made of three stout bamboos; two rising from the sides, and one from the fore part of the vessel, lashed together at the top.”

However, what can we expect from a maritime terminology? “When more detail is known, the names for *perahu* parts will probably tell us a great deal about the transfer of boatbuilding skill in the last 500 years or so between the different islands, and about the impact of western technology. They will also trace the recent migrations of the main seafaring groups”, is an answer given by Horridge (1981:85-91). From my point of view, we will have to reckon with several sources of influence from outside: the Archipelago has been the target of the spice trade for a least one and a half millenia; therefore it is not surprising to find Indian, Arabian, and Chinese ships frequenting the ports visited by the first Portuguese “explorers” as well as records of Indonesian sea raids and trade in India, Indochina, and China itself. First, Portuguese, then Dutch and English made use of local shipping and shipbuilding, and renegades and beachcombers are recorded as having worked on or sailed in native vessels. From the last century

onwards, the English and Dutch began to compile dictionaries for the officers of native-manned European sailing ships, a useful means of recording western influences. At last the diffusion of the fore-and-aft rig in the late nineteenth century marked the end of widespread use of the rectangular *layar tanja* rig, and the introduction of more European-like hull designs, with quarter sterns and rudders even changed the body of the boat itself.

However, indigenous Indonesian navigation has a place of its own: "To account for the Malayo-Polynesian migrations in the insular environment of Oceania, where islands are often separated from their nearest neighbours by long stretches of open water, the migrants would have had to possess a relatively complex culture, specifically one which included developed water craft and advanced navigational skills".³ As research has shown, the Austronesians' means of travel, outrigger boat and double canoe, are found all along the migration routes to Madagascar in the west and the Polynesian islands to the east, and there seem to be reasons to believe the sea around Sulawesi and the southern Philippines to have been a major centre of dispersal: comparison of constructional features and techniques make Doran (1981:91) conclude, that an "Indonesian center of boat complexity at perhaps 1000 to 500 B.C. in the vicinity of Sulawesi is a reasonable hypothesis at this stage of knowledge". In general East Indonesia and the Philippines would have been the Austronesians' entry-way to the Pacific, and some linguistic reasons seem to strengthen this assumption; there even exists a study comparing the morphology of Sulawesi and Polynesian languages (Kähler, 1952-55). However, the only broader researches on typology and construction of the vessels in question which include worldists known to me are Frederici's research on the traditional craft of East Indonesia (1912) and Haddon and Hornell's voluminous *Canoes of Oceania* (1936-38). It will be explained further on why the present research could not add much more to their conclusions: the time in focus is too far away to leave anything but traces (though quite obvious ones) in the modern languages spoken in the area. But we will be able to prove some hypotheses on the techniques of indigenous plank-boat design put forward quite recently by Manguin (1985 [a, b]) and Horridge (1978, 1982). And a culture without a tradition of construction planning by technical drawings and computations will have to use other means of conceptualizing complicated objects such as big plank-built ships than Western ways; as the saying goes, "handed down from father to son", besides learning-by-doing it is language, speaking about and explaining what and how it is done, that becomes the vehicle of transmission of this knowledge, and, as we will see further on is used in quite astonishing ways for concrete technical planning of a vessel.

The data to be presented were collected during a two years' stay in Indonesia, partially sponsored by a German government exchange programme. Field research had been done in the Buton area in February and March 1988, and from August 1988 to November 1989 I participated in the building of a boat at Tana Beru and some sailing cruises with Biran and Bugis crews; while in Buton only observing and interviewing was possible, at Tana Beru I fortunately got the chance to live and work together with the local shipbuilders and afterwards to be enlisted as mate on a boat sailing to several other places of interest in South Sulawesi. Also, crews of big and small sailing vessels met with in the harbours visited proved reliable informants. Here again only observations and work with questionnaires was possible. Besides, additional data has been viewed in various scattered (and mostly quite old) dictionaries and other works dealing with the languages and groups examined during the last year, among which are Dutch-Malay maritime dictionaries for use on board colonial vessels with Indonesia /crews (Badings, 1880; Kriens, 1880; Oderwald, 1924). The linguistic data, i.e. the collection of terms, is stored in a computer database divided into the three main parts of hull construction, rigging, and navigation (including "miscellaneous"). While research in Tana Beru resulted in several thousand different terms for boat parts and navigational techniques, most of the other languages did not reveal this variety: different kinds of boats and rigging, a varying complexity of building methods, and

different time depths of the recent maritime traditions are reflected in the terminologies, so that comparability made selection inevitable. A list of about 100 words for the main parts of a sailing boat and its manoeuvres had been compiled for a comparison beyond Sulawesi, while the remaining terms had been reduced to about 300 entries, under which the additional words (mostly small parts of bigger constructional units) could be listed. Observing the building of a boat did not reveal only linguistic data, so that where possible technical and ethnographical information is recorded under the corresponding entry. A brief glossary is given as an appendix.

The languages examined *in situ* will be abbreviated as follows: Konjo, i.e. the "coastal" dialect spoken by the boatbuilding and trading communities on the southern tip of the peninsulas, as KON; Makassarese, its closest affiliate, as MAK; Buginese and Mandarese, the languages of the two other maritime people BUG and MAN; Bajo – here the dialect of the *orang laut* of Wangi-Wangi in the Buton group – as BAJ; the languages of the Buton archipelago as WOL for Wolio, BIN for Binongko, TOM for Tomea, WAN for Wanci, CIA for Cia-Cia, SIO for Siompu. Due to linguistic reasons, the Konjo, and SIO for Siompu, Makassarese, Buginese, and Mandar today are classified as belonging to a South Sulawesi Group, the Butonese to a Muna-Buton Group within the West Indonesia Languages;⁴ some language boundaries are still being discussed, and most of the Butonese languages have not yet been examined closely. For MAK and BUG we can rely on the dictionaries and atlases by Matthes (1874, 1885), which besides other things luckily preserved quite detailed drawings of sailing vessels as well as fishing techniques and house construction added with annotations in last century's languages. A modern Makassarese dictionary (Cense, 1979) also proved very useful. Where literature is available, I tried to add data from the following other languages: Javanese (JAV), Madurese (MAD), Sundanese (SUN)⁵ and the works mentioned by Frederici, Haddon and Hornell, and Horridge. The European languages cited are abbreviated as ENG for English, NDL for Dutch, GER for German, FRA for French, POR for Portuguese, ESP for Spanish; the "Malay" words drawn from the Netherlands Colonial Marine dictionaries mentioned above with MNL. There are probably no English-Malay dictionaries for the British Navy, but I luckily discovered several marine dictionaries for English officers commanding the Indian "Laskari" sailors on board ships of the home trade (Roebuck, 1841; Small, 1882; Vaz, 1897) – the language described should be Hindustani (Hindi or Urdu), but, as it is described as a specialized sailors language in use on board ship only it will here – following the sources – be called "Laskari". However, maritime terminology proves a quite unstructured field: obvious mistakes, mistranslations, and misunderstandings resulting from a lack of knowledge of maritime topics and/or the languages observed often make it difficult to rely on one source only – something that yet is unavoidable in many a case. Even the colonial marine dictionaries mentioned above are unsure about the usage of their own mother tongue's terminologies and – for example – list several different ropes under one unspecific entry; luckily one of them (Baldings, 1880) enlightens us with detailed annotations of a technical nature, on which some of the technical remarks will have to rely. In presenting the data I will follow the construction of a ship in South Sulawesi first and then try to bring together the evidence with the area examined through literature in some closing remarks. Bring the language of the group examined closest, KON will take the lead in descriptions, and their techniques explained in more detail as examples of methods of oceanic boatbuilding in general.

Actual building of a boat begins with laying of the keel. In some languages its name, BUG/MAK *hunasaq*, MAN/BAJ *lunas* is close to or even the same as the IND/MAL/MNL *lunas* "keel" and the presumed PAN reconstruction "lu(nN)as". In the Butonese languages it is called *tena* (for all except SIO *unea*), explained as a specialized shipbuilding term by informants. The Konjo boatbuilders use a three-piece keel in traditional boats; the name of the main keel-piece (*kalebiseang*) translates as "soul of the boat",⁶ the extensions (*panyambung*) actually as "extension". For connecting these pieces a succession of ceremonies is held. The moment itself symbolizes a marriage,

which results in the boat being born at the moment of the launching. This idea is reflected in the names of the mortice (*telang* "vagina") and tenon (*laso* "penis") used for connecting the keel-pieces; a small package of white cloth containing some "magical" ingredients – small piece of gold, some leaves, rice, verses of the Qur'an – which is placed in the mortice depicts the semen. In a second sequence of ceremonies the marks for the "construction plan" are applied. In a boat built by one of the traditional construction patterns there will be a row of small project lugs (*tambugu*) divided by the flat spaces in between (*ruang*); in a boat built without "construction drawing" only the points for the dowels are fixed on the keel. These should not collide with themselves nor with the dowels used later for fixing of the frames. This is achieved by cutting two alternating rows of notches on the keel's sides, one to the front, the mark on the other side to the aft of a piece banana-trunk laid on the line between a *tambugu* and a *ruang*. Frames will be placed in the middle of these units (or between the notches in a boat without "construction plans" on the keel), so that the dowels holding the ribs will be sufficiently out of reach. By cross-changing of the two patterns for every new strake collision of the dowels between the planks is avoided. The word *tambugu* is mentioned in Matthes' and Cense's BUG and MAK dictionaries – Matthes' description (under the entry *tataripang* (in KON the name for a unit of one *tambugu* and one *ruang* – see below) "vierkante blokjes hout, die – de geheele lengte van de kiel door op korten afstand van elkander aangebragt zijn tot het geven van merdere stevigheid", under *tambugu* "evenals de *tataripang*, doch in de *pangepeq lunasaq*"), though wrong, is an obvious indication of the long use of this constructional technique. After connecting the keel pieces the garboard strake will be fixed with dowels which are inserted into holes drilled on the spots of the markers mentioned; the "boat" can be left for the "wedding night". In the South Sulawesi languages its name (*pangepe(q)*) is derived from a stem indicating "to press, squeeze" (*epe(q)*). The derivation depicts a "squeezer" pressing together the keel (pieces); the words collected in Buton (BIN, TOM, WAN *rumahi*, CIA *ompu*, SIO *inano papa*) again were signified as specialized shipbuilding terms by the informants.

The next step is the fixing of the stems. As described above, the curved traditional stem is fastened by tenon and mortice to the front surface of the keel, while the "modern" version is set on the keel at an angle. In South Sulawesi where both types are in use, this difference is reflected in the terminology: while the first version is named *pamanru(ng)*,⁷ the second type bears the name *linggi*, following Horridge (1979:43) a loanword derived from "the prow piece added on a Javanese fishing boat" and found again in the MNL dictionaries. The Butonese terms (BIN, TOM, CIA *umbui*; WAN, SIO *tangara*) may remind one of parts of the traditional house – following the informants, at least WAN *tangara*, too, is the name for some of the poles on which a house is erected. While the indigenous type of stem on its back is given slanting edges (KON *kaheala*) for fixing the planks, the "modern" type is doubled with an apron. Its name (KON, MAK *buabauja*; MAN, BUG, BAJ *buabuaya*; in Buton (*ka*)*buebuea*) in all the languages concerned translates "small crocodile". Although already described by Matthes ("hout dat van voren onderaan het schip begint, en van boven uitkomt, dienende ingelijks tot steun van de boegspriet"), a stem set on the keel and using an apron is too similar to the European construction to be an indigenous invention. Horridge (1979:43) quotes MAL *buabuaya* for "apron", my sources list the loanword *apron* or technical descriptions.

As described by Stavorinus, in Sulawesi boats are still built in planks fixed with dowels first, and the frames are set in afterwards. Today planks are cut out of ready sawn timbers in several stages of trying and improving the shape; in former times one piece of a tree or a branch would have been cut into two planks of symmetrical shape that could be used on both sides of the hull. They are connected edge by edge with dowels made out of some species of hard and flexible mangroves, and the frames are subsequently fixed by dowels hammered in from the outside through the planks into the frame's timber. For getting smooth-fitting edges an instrument called *singkoloq* (see

below) is used. A two-pointed iron blade is pulled along the upper side of an already fixed plank, leaving with its second, a littler shorter tip, a mark in the provisionally fixed new plank that will be cut down to this line. After the planks are in place, the inner surfaces are smoothed with a small square adze called *bingkung* in BUG, MAK, and KON, *biung* in Mandarese; in Buton only TOM*bingku* and BAJ *bingko* could be obtained. This adze is the universal instrument in Indonesian boatbuilding that is found in use over the whole of the islands. Watertightness is achieved either by bark placed between the perfectly fitting planks before hammering them together or by a wool-like fibre that will be put on the edge and glued in place by seawater and a paint brush from a branch of a trees containing some kind of glue. Nowadays the seawater-glue is more and more replaced with oilpaints, and instead of the bark some kind of oiled paper is coming into use. The seams are afterwards filled up from the outside with more bark and sealed with a natural rubber, and, as a last operation, the outside of the hull is smoothed with the *bingkung*, holes are filled up with rubber or – as a more modern method – with a mixture of lime and paint.

To achieve symmetry some kind of sequence in fixing planks to the hull is necessary. The patterns discovered vary considerably according to the “sophistication” of construction (for this and the following Fig. 3). It is usual to begin with the plank in the middle of a new strake, and to add curved planks to front and aft until the strake is completed. While in KON nearly all planks of the construction are named individually and placed in position by several ways of “construction plans” which prescribe the length, place, and form of each plank, the pattern at other places is to “define” planks by way of usage and process of building. A good example in the Mandarese nomenclature: the plank in the “middle” of a new strake is named as *indoq tobo*, “mother of the *tobo*”, the planks following *tobo soroq*, and the planks fitting to the stems *paparuppa*. “Plan, unspc.” in MAN is *papan* but *tobo* could not be found in the only existing dictionary; *soroq* may be translated as “to stop, to return”, *paparuppa* as “the meeting (*ruppa*) plank”. In BAJ “plank” is expressed as *sarimpah* or *pappan*; the first plank of a strake is named *iyah timban*, the timbers added to fore and aft are called *sarimpah* with an addition (as *lurus* “straight”, or *bengkoq* “curved”) describing their respective forms. Whereas *iyah* again means “mother”, *timban* and *sarimpah* could not be explained by the informants. In the other languages on the Butonese islands “plank” is called *dhopi* throughout the hull except for the short curved planks in bow and stern which are named *serempa*. In all areas a “body” of short strakes is topped with a limited number of long sheer strakes; in most languages the first two of them are given names. In BUG, MAK, KON these are *papang lamma* “the soft plank” and *rembasang* a technical term only, in MAN *palamma* and *papan tari* – same as for the third strake in KON – in BIN, TOM, WAN *palari* (see above as a name for the hull of boats from South Sulawesi) and *kabewi* or *kabuwei* – as, too, in CIA and SIO, where the first sheer strake is called *salabuku* (?)⁸ or *tolubotu*. In BAJ we find *guntuh* and *panintih*.

As mentioned, the Konjo use much more complicated patterns, for explanation we have to return again to the keel and the marks for the “constructional drawing” on its top. Sometime before the actual building starts, the master boatbuilder (KON *panrita lopi*) will have designed the vessel’s “plan” in a long night, considering the wood available, the shape and size ordered, and, in the case of a really traditional boat, the ways of combining all this with the traditional patterns of building and their prescriptions in the builder’s family traditions. One way to determine a ship’s plank pattern is fixed by the breadth of the later owner’s hand; taken as a unit for measuring, she will counted through the length of the main keel-piece in the “She loves me, she loves me not” manner, using five “fates” of the future boat – “dying on land” (coming back to the place where she had been built), being stolen, finding luck, sinking at sea, and “being a reason for joy” (for builder and owner) until one of the three “good” ones turns up. A piece of bamboo as long as the keel-piece is taken as the “construction plan”, and marked with notches for the *tambugu* and *ruang* which – as stated – will later on fix the plank’s length and place and the positions of floors and ribs; these

notches will be transferred to the upper side of the keel in form of the small projecting lugs for the *tambugu* and hollow spaces for the *ruang*. In a boat smaller than 30 tons loading capacity constructed in *tatta tallu*, the "three-times-cut", there will be 21 of these units, in a ship bigger than this cut by *tatta appaq*, the "four-times-cut", two more *ruang* and two more *tambugu*. Care is taken to increase the lengths of these units up to the aft little by little; the builders explain this by "The longer we build boats, the more it should be" – and do the same with the breadth of the planks from keel to the topmost plank. The sixth *ruang* from the bows is normally a little longer than the other ones: it will become the place of the magic "navel" of the boat on the night before the launching. Sometimes the first and the last *tambugu*, too, are extended – in most cases the wood used for the keel extensions had been a little longer than fitting into the schedule, and by extending the counting is made appropriate again. A unit of one *ruang* and one *tambugu* is called *tataripang* or *taritaripang*; for "counting" in *tataripang*, reckoning begins with the two *tambugu* in "front" and "aft" of the sixth *ruang* counting in both directions from the "centre" of the boat.

The *tatta appaq* has been described sufficiently by Pelly (1975); the way the planks are set together in the "three-times-cut" is shown in Fig. 3. As one can see, each plank in the structure bears its own name associated with its form and place: for example, the plank in the middle of a new strake (*papangappaq*) will normally last over four (*appaq*) *tataripang*, alternating one unit to right or left to its predecessor in the last strake; *lalang* means "inside", *tallu* "three"; *sarro* reminds one of MAN *soroq*; *tungkulu* translates "hard", the name for this plank in Ara, the second centre of Konjo boatbuilding, *rakkasala*, "quickly damaged". An additional numeral for the strake it is used in can fix the place of a plank definitely; a sophisticated terminology for the various possible forms of planks is in use. In a strictly traditional boat all planks would have to fit rigidly into the pattern, so that planks too long should be cut to size; informants told me that old *panrita lopi* after long experience could pick out trees suitable for special planks by sight. Depending on the size of the boat these strict prescriptions are stopped after the seventh or the eighth strake in the *tatta tallu*, and on top of the short planked parts two to four long strakes are fixed; the more flexible *tatta appaq* can be extended up to the size wished without a predescribed end of its *tatta* and topped with as many long strakes as desired.

When the hull reaches a sufficient height, floor timbers are fitted. Crossing the keel in the middle of each *ruang*, they are fixed to the planks with dowels hammered in from outside. In some languages their name is *kelu* (MAK, KON) or *kilu* (BUG, MAN, BAJ), in Buton *gadi-gadi*; while the word *kelu* can be found in manuscripts of the early sixteenth century,⁹ *gadi* is IND/MAL *gading* "elephant tusk; ship's frame". Alternating with the floors, ribs are set to both sides of the *tambugu*. In KON, MAK, and BUG they are called *soloroq*, in MAN and KON *solor*; Horridge suspects European influence via POR/SPA *solera*. In Matthes' dictionaries "glijden, heenglijden" can be found under *soloroq*, Cense translates erroneously "(Mal. *sulur*) stringer", and in Friberg and Friberg's Konjo dictionary *suluru*, *panyuluru* is mentioned as "cross beams of house on floor level". The Butonese name, *lima-lima*, translates "artificial or small hand(s)". Some of the frames are left projecting over the hull and are used for fixing stays and shrouds; they are called *taju/o(q)* in all languages examined. In IND *tajuk* besides the technical explanation paraphrases a crown or some traditional head-dresses. The stringers fixed upon ribs and floors are called *lepe* in all languages except BIN, TOM and CIA, where they bear the name *sentia*. While *lepe* again seems to be an ancient term,¹⁰ a *sente* GER and NDL of the eighteenth century means a long, flexible plank used to check the range of the ribs set on a keel before planking. However, when confronted with some drawings about the presumed indigenous style of fitting of frames, some old Konjo master builder from the village of Lemo-Lemo explained another pattern which uses transverse beams only – we will return to this later on.

The names used today for deck of a ship are *kataba(ng)* (BUG, MAK, KON, BAJ, BIN, WAN, SIO) or *deq, deke* (BUG, TOM, CIA, IND). The former term too denotes "house floor in a traditional house" in BUG and KON, the second obviously derived from ENG, NDL, GER *de(c)k*. Matthes and Cense mention several kinds of deck construction in the ships of the last century; additional KON *barelo* and *pallaparaq* and MAN *laper* can thus be explained. The quarter-deck projecting over the stern in BUG, MAK, KON is called *ambeng*, in MAN *abing*, and in BAJ *ambin*. The *lambo* boats from Buton normally do not carry a poop-deck. For a hatch we find *palaka(q)* in most languages. The word seems to be taken from POR *falca*, ENG "hatch": as we will see further, on decks are probably introduced constructions. The traditional type of cabin is a roof-like construction made out of leaves or timber over the (undecked) hull; in South Sulawesi this called *kurung*, in Buton *helombo*. The names of its parts are analogous to the terms in use for house construction. A rectangular deck-hut made out of planks is called *kamara(q)*, as, in all languages, "room" in a (preferably non-traditional?) house – IND *kamar* and NDL *kamer* exist for "room", and the name for a cabin on a boat in eighteenth century SPA and POR is *camara*. Informants from Bira had been sure that the first *pinisi* had no huts on their decks; the drawings in Matthes' *Ethnographische atlas* as well as old models show other types of boats with several types of cabins erected on the deck, and the reconstructed *Hati Marege* had a hut with side-planks and a roof made of leaves.

The traditional type of steering device is a lateral rudder fixed on stout rudder beams which cross the hull in the aft; on the more modern boats a centre rudder with some pintle and gudgeon hangings is used. The simplest construction for a lateral rudder consists of two crossbeams, to which the rudders are bound by means of a toggle and ropes spliced to the rudder. The name for the lower thwart in BUG, MAK, and KON is *sangkilang*, in MAN *sanggilang*; while the upper beam is given an additional meaning "above" or "male" in other languages, in KON it is called *sanjata*. In Buton lateral rudders are not used. On a *pinisi* the rudder-hangings are quite a complicated matter constructed out of several beams and thwarts; names for the different parts vary from language to language and in KON even from village to village. A centre-rudder is denoted by IND *kemudi* where the lateral rudder, *guling* throughout, is used; in Buton it is called *uli* or *rekui*: the PAN reconstruction is *uli*.

On the night before the launching of a new boat a big feast is given on board the still docked ship. Prayers are read, and the whole village is invited to a big meal prepared by the future owner's family and their neighbours. It is said that the more guests are invited, the better the ship's future will be, and not seldom water buffaloes, goats, and chicken are served to some hundred guests. And again a sequence of ceremonies is held inside the hull,¹¹ the most important being the cutting of the magic "navel" of the boat. In Tana Beru – the only place where I was able to observe launching – the blood of two chickens' combs is smeared over the sixth *ruang* that will become the place of a hole drilled through the keel with a sacred chisel; afterwards some gold is thrown through this hole to be collected by the children of the builder, and the hole is then closed temporarily with *onde-onde* and *haje*, traditional sweetmeats which are used all over the islands in connection with ship building ceremonies. In the middle of the night, when the guests are gone, a special small sacrifice (called "feeding the lizards", for at least one lizard on board is necessary for a safe voyage) will be made, old people will read prayers inside the boat and the future captain or owner has to sprinkle the whole ship with some sea-water mixed with leaves and spices for a good launching and a successful "life". The following day the people who joined in the feast will come again, this time to help push the boat down to the sea. As the laying of the keel had symbolized a "wedding" and the constructional process is often referred to as a "pregnancy", the launching has the role of the "birth" of the boat. In former times, before pulleys came into use, a big *pinisi* with another feast would have been pushed and pulled by some hundred men down the shore into the water, sometimes crossing a hold in front of the bows that had been used to slaughter the water buffalo of the

previous night's feast. Tana Beru is a centre of boatbuilding, and nearly 50 per cent of the boats are marketed by a co-operative to other islands, so that the owners of new boats seldom come to Tana Beru to organize a big feast. The industry is undergoing conversion from traditional undertakings to modern enterprise, already including advertisement, marketing, and innovations. For example, the building patterns described above can be used for the construction of only some types of traditional boats, so that most of the more modern forms of hulls are built without them – no *tambugu* and *ruang* are marked on the keel, and although most of the names for planks are still retained, there are no prescriptions for the length and form of the planks. The knowledge of "construction plans" had been restricted to the most experienced builders, and would have been traded to their sons – if these would still build traditional boats. There is a concrete danger that the generation of *panrita lopi* still building boats today will be the rearguard of Sulawesi boatbuilding tradition.

A link between hull and rigging is the bowsprit; the Sulawesi version consists of an inner beam and two side-bars running from its tip to the sides of the fore-castle. The whole construction is called *anjong* in BUG, MAK, and KON, *anjuh* in BAJ, *solloq* in MAN; in Buton its name is *kansoroi*, *kansorei*, or *kancoroi* (except BIN *singgu-sunggu*). The planks on the sides of the bowsprits were called *pangepeq* (see above) or the comparable *passipi* by informants from South Sulawesi. In Buton their name is *kotamara* throughout – this word is explained as "*papan untuk melimddungi orang yang memasang meriam di atas kapal*" in the Indonesia *Kamus besar*. It can be assumed that today's bowsprit constructions are a recent introduction: Matthes' drawings show ships with two poles crossing over a low fore-deck, on which the bowsprit lies, a construction recognized by KON informants as belonging to a *padewakang* like the *Hati Marege*. Even the names for its several parts – like *sarempa* for the cross-poles or *salompong* for the low fore-deck – are the same in last century's MAK and today's KON. On the modern version side-bars and main beam are connected by cross-pieces; the corresponding names vary considerably, so that a comparison proved difficult. A good example is the nomenclature of the sailors of Bira: the spar of the bowsprit itself is called *paqcocorang*, "place of the foresails (*cocoro* – s.bel.)", the side-bars *juang*,¹² and the cross-pieces *panahang*, "holder". On a *pinisi* the cross-pieces are further differentiated by adding the name of the sail made fast to each; on boats carrying one or two foresails only, unspecific *panahang* is used.

On a *lambo* normally only one foresail is in use; on the Butonese islands, where most *lambo* can be found the name is *jipu* throughout. *Jib*, *jip*, or *jiép* are mentioned by the Netherlands' colonial marine dictionaries as the name for a *kluiver*, a jib, and in the English-"Laskari" wordlists for ENG *jib*, reminding one more of the ENG word than of NDL *fok* ("forestaysail") or *kluiver*. On a *pinisi*, the (outer) jibs are named *cocoro(q)* in BUG, MAK, and KON, *cocor* in MAN, the forestaysail *tarengke* in all languages. Cense connects *cocoro* with "MAL *cucur*, boegspriet", Horridge presumes a connection to ESP *foque*, *fofoque*. Informants from BIN and WAN mentioned *sosoro* as a variant name for *jipu*. *Tarengke* seems to be derived from POR *trinquetilha*, "jib"; it is *trinket* in the MNL dictionaries (under the NDL *fok*), and *trikat*, *tirkat*, *tringkat* in "Laskari". I found two "more indigenous" names: *Kalewere* in BUG, MAK, and KON depicts a foresail set in the *layar tanja* as a sign of a successful voyage when entering harbour, and *kapabelo* mentioned as a variant for *jipu* by informants from WAN and CIA and perhaps explicable by a root *belo* (*ka-pa-belo*) which will interest us further on. The name of a forestay in MAN (*leteng*) and BUG (*leteang*) derives from the rote *lete*, translated by Matthes as "bridge" in the Mandarese dictionary with "*titian; sebuah atau lebih balok kayu dsb. yang menghubungkan satu bagian dengan satu yang lain*"; BAJ *tetaan* fits into the context. In KON its name is *paqnumariang* – the root *numari* translates "to run, to flee", *paqnumariang* would mean "a place for running (of the sail?)". In the Butonese languages "forestay" is called *suai*; in the Malay marine dictionaries *suai* shows up as *soewaai*, *swaai*, in the "Laskari" dictionaries as *sawai*; Röding mentions *estay* for eighteenth-century POR and ESP. Besides the forestays on

which sails are set, there is an additional forestay running from the tip of the bowsprit to the mast-tops: while in Buton this stay is named *suai nade*,¹³ in South Sulawesi informants mentioned the names *talitalipong* (MAK, KON; often translated as IND *tali telpon*, "rope for a telephone") and *taligram* (BUG – "telegram"). The explanation given by the informants is that this rope is the place for the radio-wire. Matthes and Cense explain *pong* with "beginning of something, things most below", and the *tuluq pong* heard from some older informants avoids use of the IND *tali* – this stay was probably in use before recent regulations prescribed the use of radio communications.

The names for the shrouds holding a mast are given in the MNL dictionaries as *tambora(ng)* and *labrang*; in the languages examined these become *tambora* (MAN, BAJ, WAN, CIA) *tambirah* (BAJ), (*pat*)*tamberang* (BUG), *pannambora* (KON, MAK), and *labara* (BIN, TOM, SIO). IN IND/MAL dictionaries both names occur again in several different spellings (*tambora*, *tamberang*, *laberang*, etc.), in the "Laskari" dictionaries "shroud" is translated with *labran*. A running backstay is called *tambora jalan(g)* (IND/MAL *jalan* "to walk"; translated "running stay") in South Sulawesi, in Buton it is called *tali gai*; although *gai* was translated as "to pull from beneath to above", I suspect its origin in ENG *guy*, an entry for "backstay" in Paasch (1901), or NDL *geitouw*, translated as *gai* in the MNL dictionaries. Interestingly a rigging screw in all languages denotes IND/MAL *jarung keras* (with variations as *karasi* or *kerassaq*). Despite phonological reasons prohibiting words ending in a consonant in all languages except MAN and BAJ, informants tended to prefer *janung keras* or *tambora jalan* to the adopted constructions such as *karasi* and *jalang*. In fact the masts shown on old models are tripods using no stays, and today most of the *pinisi* still have a foreleg for the mainmast. In Buton the name for a mast is *kokombu* throughout, in South Sulawesi its name is *pallajarang* (BUG) or *pallayarang* (MAK, MAN, KON); following Matthes and Cense this word is derived from a now extinct *layaraq* (IND/MAL *layar*, ENG "sail"), today *sompeq* in BUG, *sombalaq* in MAK and KON and *sobal* in MAN – Mills (1975:223) even reconstructed **so(m)baI* – and means "place of the sail". The foreleg of a modern *pinisi*'s mast is *panumbu* in BUG and *panundug* in MAK, both dictionaries and informants supplying the same words; KON informants mentioned both terms, people from Mandar and Buton gave none, for they maintained they did not use masts with forelegs. On bigger boats the mast is connected with a topmast by means of a cross-tree construction which looks like its European pendant on ships of the last century; while most informants called the topmast *tiang* (IND, MAL, MNL "mast"), only some Buginese sailors mentioned *lajo* ("to be high") as a name susceptible of indigenous origin. In South Sulawesi "cross-tree" is generally understood under the BUG (*bola-bola* (>*bola*, "house"), in most of the languages of Buton its name is *tiwa-tiwa*. The parts of a cross-tree are numerous, and I will mention here only *dulang-dulang* (*dulang*, "tray"), in KON the mainmast's cap, in IND the cross-tree itself; in CIA it becomes *dula-dula*, in BAJ *dudulah*, again describing the cross-tree. In one of the MNL dictionaries *dulang-dulang* is even mentioned as the mast step on the keel.

As described above, Sulawesi's indigenous rigging is the rectangular *layar tanja*; it therefore makes sense to begin with this and then to compare it step by step with the recent riggings. It should be mentioned that even older informants from Buton were not able to recall other rigs than a topsail-cutter used before the introduction of the Bermuda-rigged boats, so that no data about a *pinisi* rig or the *layar tanja* could be collected. The upper yard of a *layar tanja* is either called *bau* (MAK, KON) or named with a word derived from this root. Moreover, JAV *pembahon*, *pembawan* or MAD *pangbau*, *pembawon* even show morphological similarities to BUG *pambauang* or MAN *baugang*. The lower yard is called *pelo(k)ang* in all languages of South Sulawesi, derived from a common root *pelo(q)* meaning "to roll upon" (here the sail on the boom) – the same as JAV and mad *penggiling* (>*giling*). The spars in use on the boats of today are of two different types: the standing gaff of a *pinisi* and the "Bermuda" gaff seen on the *lambo*. In KON and BAJ the corresponding word is the same as for the yard in the

layar tanja; Mandarese informants differentiated all three types, calling the “Bermuda” type *cakkeng* and the standing gaff, as in BUG and MAK, *gaq*. In the Butonese languages the “Bermuda” gaff in use is called *gappu*, the Dutch dictionaries give *gaf*, *gaffel* and *gap*; the source is obvious. More or less the same can be said for a boom of a gaff- or fore-sail: it is *bong* in BUG, MAK and KON and *bomu* in Buton. Oderwald interestingly lists *giek*, *bom*, and *penggiling* under his entry NDL *giek*. Only MAN *peloang* is the same for introduced and traditional rig. A standing gaff is steadied with two pairs of vangs – one running to some place before the mast, the second bound to the aft – which can be compared to the braces of a rectangular rig; while only in KON are the names the same as for the vangs in a *layar tanja* and the schooner-rig, the sailors of today’s *pinisi* called them *tarnala* and *gawe*, two words found under several entries for braces, buntlines and closing ropes on square-sailed ships in the marine dictionaries as *ternaal* and *gai* or *gahe*. “Vang” in “Laskari” is *tarnal* or *ghai*. In MAN the name astonishingly is *tali gai*. In a *layar tanja* rig the vang aft is called *lolo(q)* in BUG, MAK, KON, and MAN, but *bau* in SIO and *bahu* in BIN.¹⁴ For a fore-vang Matthes mentions BUG *tulu pong* and MAK *pokoq*; I obtained MAK/KON *tuntung*. The topping-lift for a boom is named *manteleq* in BUG, MAK, and KON, *mantel* in MAN and BAJ, and *mante* in Buton. The Malay colonial dictionaries list *mantil*, the “Laskari” ones *mantela*, and there is an entry *mantilha* in Rödings POR list. Actually, the runner-and-tackle holding a backstay is called *takalaq* in KON and BUG, and *manteltakel* in GER and NDL for its running (*mantel*) and hauling (*takel*) part – easy errors for Indonesian sea-cadets on colonial ships.

Among other European introductions we find the topsail. Listed by Badings as *kapsel*, it becomes *tapsel* in MAN, *tapsere*, *tappusere* in BUG, *tampasere* in KON, and *tapusele* in BIN, TOM, and SIO. The tack and a closing rope running over the mast-top to the tack are called by several names found scattered in the Dutch dictionaries (e.g. BUG, *anja*, *passatinggi*, KON *satinggi*). While “sail, general” is named quite differently throughout the area (KON, MAK *sombalaq*, BUG *sompe*, MAN *sobal*, BAJ *la:maq*, BIN, TOM, WAN *layare*, and CIA and SIO *pangawa*) and the name for a “mainsail” always comprises the local “sail” too, topsail and fore-sails are named individually with terms obviously introduced. In Buton even the sewn leech of a clothsail is called *res*, the same as in our MNL dictionaries. In south Sulawesi a leech is *parimping*, and the bolt-rope *tuluq* (“rope”) *parimping* – BAJ, CIA *parimpi*, and SIO *paninti* seem to be derived from this.

Naturally not introduced are the most important ropes of a sail, halliard and sheet. The South Sulawesi name for a halliard (KON, MAK *buqbukang*; BUG, MAN *bubukan*) can be compared with “sheet” in other Indonesian languages, e.g. JAV, SUN *pembubutan*, MAD *bubutan*, and Dempwolff even reconstructed PAN *butbut* for “to pull out”. However, “setting sail” is expressed with *bessoqi sombalaq/sompeq* in South Sulawesi, and *pabessoq* (*bessoq*, “to pull”) is the name for the peak-halliard of a *lambo* from Galesong (MAK). BIN, TOM, and WAN *vini* or *wini* for “halliard” too means “to pull”, while CIA *kahela* and SIO *kabinta* just could be explained as specialized nautical terms – but again, for “setting sail” some other word is in use. Some *pinisi* sailors used *anja* for a halliard: this is found again in the Dutch marine dictionaries and their English “Laskari” contemporaries. For setting a sail with a sliding gaff two halliards, one for the claw of the gaff, the other for the peak, are necessary; in all languages the corresponding names are words such as “claw” (*pangka*, *pakka*) and “peak” (*cangking*, *cakkeng* – the sliding gaff in MAN) as addition to “halliard”, only some Butonese languages use words derived from a probable common root **bangu*, “to erect, to set upright” for the peak-halliard. Reefing of the ga sails of a *pinisi* is done by several brails, the main one on the top leech of the sail being differentiated from the others. In the colonial marine dictionaries we find under their proper NDL entry *geitouw* several entries (*stingi*, *stingei*, *ternaal*, *tali gei*, *utara*), of which I only obtained BUG *pas*atinggi* for the main brail in today sailor’s language. The other languages use words such as *pamurung* (KON, MAK) or *papuru* (MAN,

BUG, TOM) derived from a root *puru*, which following the informants means “to close”, and is found in a BUG dictionary (Said, 1977) as IND “pengikat celana”. The sheet of a sail is called *damang* (KON, BUG MAK) or *baya-baya* (KON, BUG, MAN, MAK) in South Sulawesi, and *kala* throughout Buton (BAJ *killaq*, KON *kallaq*). In IND, MAL and the marine dictionaries two of these words can be proved (*kelat*, *daman*), and *daman* is even the name for “sheet” in Arabic. KON informants explained that *baya-baya* is only in use on small boats, while *kallaq* or *daman* describes the sheets for sails on *pinisi*, and in MAN *baya-baya* only was given.

Before I close with some remarks about the techniques of navigation, a short resumé. As far as construction of a boat is concerned, more or less the same techniques are described minutely for early Philippine boatbuilding yards¹⁵ and, though often quite superficially, by some other authors (see above) throughout the last one-and-a-half centuries as indigenous to South-East Asian methods of construction. Though the complexity of the plank patterns mentioned varies extremely and some sources obviously mistake more than they obtain, at least some words for crucial points of a “shell-first” way of construction can be compared over a wider area: a keel is *lunas* in many a language of the archipelago, so that even a PAN reconstruction *lunNas* is presumed, as PAN *papan*, *panpan*, *pan* and other cognates for “plank” and *pasak*, *pasaq*, for “dowel”. The “sophistication” of boatbuilding varies enormously even within each community, and accordingly names for things as specialized as single planks can change from village to village – here especially noted for KON spoken in Tana Beru, Lemo-Lemo, Ara, and Bira. Deductable from the data for plank-names is a flow of technical knowledge between the Bajau and the other groups living on the Butonese islands; *orang laut* informants from Mola on Wanci even told a story about a “first” *lambo* which stranded on the neighbouring island of Kaledupa in the 1930s which they took as a model for further boats. Some old men from Siompu and Binongko recalled the *perahu* of their villages, listing no *lambo* before 1935, thereby proving in the case of Siompu, that their village did not own trading vessels before c.1900, and that the first boats were purchased from “Buginese” and Bajaus. While on Siompu,* I found several boatbuilders from Ara building a new *lambo* in one of the villages visited, and the Bajaus were the most renowned boatbuilders on the islands inhabited by them around Buton. However, many of the Bajau terms show much more resemblance to the corresponding South Sulawesian ones than do the proper Butonese languages, so that connections have to be assumed – at least the Bajaus think themselves to have originated from their South Sulawesian cousins in the Gulf of Bone. In the languages of South Sulawesi itself the nomenclature is obviously the best proof for the long common tradition of shipbuilding with indigenous techniques – perhaps with a centre in the area of the south-eastern tip of the peninsula, where nowadays the Konjo shipbuilding yards are situated: the KON terminology is the most complex and most consistently observed, and their techniques seem to be the most developed.

The best example for this assumption is the use of the rare “construction plans” by the boatbuilders of Lemo-Lemo and Ara: the word *tambugu* is widespread for a lug supporting a thwart in a canoe, and, too, for a lug left on a plank which in a construction preceding today’s stiff ribs was used to fasten strong branches of rattan or other flexible materials bent under pressure into the hull (see, for example, Horridge, 1981, and Manguin, 1985). From the names in different languages quoted in the literature here only Bacan *tambuku*, old Visayan *tamboko*,¹⁶ and BAJ *timbuku* will be mentioned – though in other languages (e.g. Ternate, Galela *maru-maru*) there are quite dissimilar terms for this lug, difference in time and space – the Philippines of the seventeenth century, the Moluccas at the end of the last century and Tana Beru today – is baffling. The supposition that the stiff frames which replaced this method are introduced by or copied from European prototypes can be discussed: from the beginning of European intrusion into Asia renegades are reported to have advised local rulers in especially military and maritime subjects, as for example the Macassan or

Achinese royal docks were reportedly under the supervision of the long-established Portuguese shipwrights at times when these two states were in dispute with the VOC in the seventeenth century. As stated above, one of the words found (BUG, KON, MAK *soloroq*) might have a Portuguese (*solera*) source,¹⁷ while another (*kilu, kelu*) shows affiliations with – for example – Ternatan *gilu*; proved in a Makassarese manuscript of the early sixteenth century to be a strengthening bar in a traditional house-type, *kilu* might be an indigenous term. The same could be said for *lepe*, “stringer” in Sulawesi. However, when confronted with drawings of the “flexible-rib” method, some old master-builders from Lemo-Lemo explained another pattern: several rows of transverse thwarts are set from above into dove-tailed holes in the upper edges of thick planks and fastened by twisting rattan loops which are bound tightly around these thwarts, a feature seen in several old models of boats in European museums,¹⁸ reproductions of which could only by a small chance have been known to the informants. The old men maintained, that this method had been in use five to seven generations ago – I decline to make an estimate of the value of this information. Other introduced features have been mentioned above; the most important is the deck. Most of last century’s models have no planked decks, but are closed with several kinds of short decks and platforms. There exists a PAN reconstruction *galumat* for “deck”, a word which we find as one of the several decks on the model boats in the Matthes’ drawings and as one translation among others for NDL *dek* in the Dutch colonial marine dictionaries. As stated, the name for “hatch” or “cargo space” (BUG, KON, MAK *palaka*, IND *palka*, etc.) leads back to POR *falca* – the same as in some Arabic dialects and the Swahili language of Lamu, a trading village on the east coast of Africa, at the other end of the indigenous spice trade routes. I expect more traces to be found by closer observation.

The rigs in use today obviously are recent introductions: not only techniques, but also several concrete words in today’s sailors’ terminologies are copies of European prototypes. Gibson-Hill (1950, 1952) proved convincingly, that the first *pinisi*-schooners could have been built by a certain beachcomber in the Malaysia of the middle of the last century, and the number of European words found denoting the rigging seems to strengthen this assumption: obviously the competition of the European fore-and-aft rigged small traders from British Singapore and Malaya which were able to outsail the monsoon-bound traditional Indonesian craft was felt severely in the last half of the nineteenth century,¹⁸ so that adoption of their rig proved a necessity for indigenous inter-island trade. However, the Portuguese sources for some of the terms make some more remote date of origin surmisable, and our standard example *tarengke* is, for example, found again as *tarengkety* in some dialects of Malagasy (an Austronesian-Madagascan language) as the word for a fore-sail in a local schooner rig. In fact, the nomenclature described for square-rigged vessels with Indonesian and Indian crews under European command in the Dutch and English marine dictionaries shows a wilderness of Portuguese, Spanish, Dutch, and English loan-words for the various ropes. As Indian Laskaris, Malays, Bugis, Mandarese, and Butonese are reported to have been widely employed in European shipping in Asian waters, they would have been the best source for new details of rigging when sailing on native-vessels – likewise some people from the southern tip of Sulawesi (normally called *Limos-Limos* – there still exists today the small village of Lemo-Lemo, where many of the boatbuilders in Tana Beru claim to have come from) who in descriptions of Sulawesi from the last two centuries are said to have been building boats on order from all over the Archipelago. Some words for parts of riggings are scattered all over the trading routes of the Indian Ocean, “Laskari”, Gujarati, Arabic, and Malaydaman being the best example. The same can be said for titles for ships’ officers, such as *nakhoda*, *mualim*, or *juragang*. We obviously face several layers of influence from all sources named in the introductory remarks, and I would presume an already fixed terminology made out of a blend of Portuguese, Dutch, English, and Malay for use on board ships of the European “home trade” in Asia before the introduction of the *pinisi*. We have the evidence of the marine dictionaries, and while most words in the Butonese languages

for sails and ropes of a *lambo* seem to be derived from English only, in South Sulawesi a lot of widely adopted terms of Portuguese origin are found. In the case of the *lambo*, Horridge presumed first introduction by European pearling cutters operating (and perhaps built) in Eastern Indonesia since the beginning of this century; the stories mentioned above and others which could be quoted from sources¹⁹ make an introduction from eastward more than possible. As many of the pearling boats originated from British Australia, the English sources for the names of ropes and sales of today's Butonese trading cutter may strengthen this hypothesis.

However, let us return to what I called the "Austronesian traces" of the maritime terminologies. Not yet mentioned are the parts of outrigger boats, the indigenous Austronesian means of transport. Here the literature is quite complete for a wide range of Oceanic languages, and a whole list of different PAN reconstructions exist. However, in some cases mistakes seem to have occurred. For outrigger float and outrigger boom the same reconstructions (*katir*, *saRanman*, *sama*, *hama*, *gianto*) are listed under both entries, and even the standard dictionaries of today's Indonesian and Malay are no assistance – we find words like *katir*, *cadik*, or *semang* mixed again under the two entries. The only words related to PAN which are found in Sulawesi are KON *somang*, BAJ *katir*, and BUG *ati* for "float"; following Frederici in Ternate its name is *sama*, in Bacan and Galela *somang*, and in Tobelo *hama*. The phonetic changes explain the *ama* and *hama* reported by Haddon and Hornell for Polynesian languages. The boom holding the floats is called *baratang* throughout South Sulawesi, but despite WAN and CIA *barata* (and perhaps SIO *darangka* and BAJ *jarangka*²⁰) no consistent terminology could be collected in Buton – mainly because no outrigger boats are in use on the islands visited, and the canoes carried on board a *lambo* are called *sampan*, a word derived from a Chinese root meaning "three boards" and even used in European languages, especially depicting a small boat (preferably a dug-out) without outriggers. In the languages examined by other authors a great variety of terms for "outrigger boom" is reported; possible connections cannot be explained better than has already been done minutely by Frederici (1912) and Haddon and Hornell (1936-38); I ask the interested reader to refer to their respective works. The only thing to add is, that the one-sided outriggers found in several parts of the archipelago which are suspected to be a link with the most developed craft of Micronesia, prove very useful for conveying goods and passengers from shore to ship (as having no outrigger on one of the sides makes drawing alongside possible), and that these boats astonishingly in Sulawesi today are found only in the areas around some harbours of the extant Konjo and Bugis sailing fleets. And, although single words could not be compared with their corresponding cognates, the succession of planks used for the building of a Mandarese *sandeq* – the best developed outrigger boat of Indonesia – is nearly the same as the construction described for Micronesian and Polynesian boats. A dug-out hull is added with a fixed pattern of two or three strakes of planks, which are fastened to prow-pieces made out of a log or with winged stems. Today's Mandarese version is full-decked (with a deck called *lapar*), and the outriggers are balanced skilfully with the huge triangular sail carried behind the mast,²¹ making a long and sophisticated evolution probable.

I will end with some preliminary²² remarks about navigational practice. The most important axis of orientation for a sailing boat is the angle between wind and the course of the boat (Fig. 4). The words obtained in Sulawesi for the different courses sailed in relation to the wind at first-sight seem quite unsorted, but closer examination reveals, that in nearly all languages examined "to come round, to sail closer to the wind" or "to sail close to the wind" is called *bilu(q)* or *belu(q)*, while "to cast to lee, to sail out of the wind" or "to sail with a quartering wind" is named *turu(q)*. Accordingly "to jibe, to wear ship" is expressed by a local word for "to turn" with the addition *turu(q)*, "to tack" with *bilu(q)*. The standard PAN reconstruction for "to sail to windward" is *biluq*, and – although I could not prove it in the literature available to me – a reconstruction **turuq* would mean "to sail with a quartering wind". In several

languages examined through literature (e.g. MAL/IND, JAW, SUN *turut*) we find related words. The words mentioned for “to beat to windward” in most of the languages are derived from a common root meaning “(to) saw” (BUG, MAK, KON (*m*)*aggaragaji*, WAN, CIA, SIO *karakaji*), possibly taking the zigzag blade as an image for the beats made good against the wind; in BIN and TOM informants used the loanword *opala* (>MAL/IND *beropal-opal*, “to beat to windward”). If we accept – as has been done by several sources²³ – that the metal saw is a tool not indigenous to the area, it may be possible to conclude that tacking to windward is a technique not that common for a vessel rigged with a *layar tanja*.

While in South Sulawesi directions on land are described by terms for the two axes “sea”/“land” and “above”/“down”, orientation on sea is done by compass (*pedoma(ng)* in all the languages examined) and chart (MAK, KON *kara*, MAN *kar*, BUG and the Butonese languages *pata*) in a way similar to European methods in what would be called Malayan terminologies. Today the points of a compass are marked in a common fashion in all languages, and I will quote KON as example. As one can see on the KON compass card (Fig. 5), all points of the European rose are called by names which are only slightly changed from the MAL/IND cognates in brackets. In fact we find a similar pattern in the Dutch marine dictionaries, and some PAN reconstructions again use the same words as base (e.g. *barat*, *ha-baRate* for “west (wind)”, or *timur* for “wind bringing rain (SE monsoon)”). However, on the morning of leaving a small village on Buton inhabited by speakers of CIA and BIN, an informant presented to me a compass rose made by an old man not known to me which is reproduced in Fig. 6; the informant emphasized, that proper directions do not fit to the points of the mariners’ compass used as scheme, thereby recalling the wind-and-star compasses recorded in Micro- and Polynesian navigation.

Information about means of navigation other than compass and chart was difficult to obtain, and varies considerably. Concerning stars, the most important is *Scorpio*, for its compass-like appearance on the zenith is an easy aid for steering at night; in most languages its name is *naga-naga* in opposition to the milky way called *naga* only – this *naga* probably depicts the mythical world-dragon in South-East Asian cosmogeny. In KON and BUG the Southern Cross is called *bola sala* (“a wrong house”), and is the “aim” of the only (quite obscure) “star-path” course mentioned. Two days in its direction and two to three to its right and you reach some place on the northern coasts of Bali or Madura from South Sulawesi. Besides, all seamen interviewed repeated the statements about using the observation of waves and winds as aids in navigation in areas known, as for example for the run from Makassar to Surabaya in monsoon times; together with a far-reaching knowledge of landmarks, currents, and circumstances of weather to be expected this was a tool of traditional sailing all around the world. The nomenclature for these marks and signs is numerous – some words are derived from charts, others from local names which might be passed on through exchange between captains, either in the harbours visited or in some kind of “information market” in the villages busy with inter-island trade as can be proved for Bira. However, there is another interesting link to the Austronesian traditions of sailing boat travelling: as recorded for people of Micronesia and Polynesia, several; words, mainly names of land animals are tabooed when at sea and have to be replaced with substitutes such as the “long one” for “snake”, “who live in the trees” for the small apes of Bira, or “the one with horns” for a deer. The words for “no” and “not present” are strictly forbidden – for everything has to be on board – and replaced by phrases as “look for it first” or “cheap”. These taboos were in more constant use among fishermen than on trading boats; for trading sailors were the subject of research, the words discovered are not as numerous as might have been expected – and people used to explain that all this had been superstitions of the *orang dulu*, the people living in times past.

NOTES

1. See e.g. Dick, 1980; 1985; Horridge, 1981, 1986; Ridder, 1988.
2. Stavroinus, 1979:II, 260-1; in fact part of the statement is made by the translator editor, "T." who is also able to add some navigational date about the Bay of Bone, which was still fairly unknown to European shipping.
3. Murdock, 1968:92.
4. e.g. Grimes and Grimes, 1987.
5. See Wangania, 1980, and Nooteboom, 1941.
6. >kale "soul", bise "paddle", + /-ang/, a locative suffix.
7. In KON informants from the boatbuilding village of Lemo-Lemo used the word *soiting*, people from Bira and Ara *pamaru*; a possible root **paru* is not listed in the courses.
8. Is it possible, that the nagging author made the mistake credited to other authors above and wrote an Indonesian *salah buku* (lit. "a book-mistake") into the small red one carried?
9. Following Cense, 1979: "*baruga nikelu, een baruga mooier en steviger dan een gewone baruga*".
10. e.g. Matthes "een van zijde geweven rand, die als siraad gezet, als 't ware angehaakt; *kalepe*, iemand of iets onder de arm tegen de lijf aan drukken".
11. Good descriptions can be found in Collins, 1937; and Pelly, 1975.
12. Cense explains MAK *juang-juang* with "op voor- en achterstevan v e vlerkprauw uitstekende bamboe".
13. *Nade* is the name of the rig of a *lambo* - see above.
14. In Buton only old sailors remembered having used a gaff with a vang (presumably of cutter-type), so that in only some languages could a word be obtained. Not mentioned: BAJ *killaq mandiatq* ("sheet above") and WAN *pamate* (>*mate*, "dead"?).
15. Alcina, 1668, quoted from Horridge, 1982; and Scott, 1981.
16. There exists, however, an entry *suluruq* ("transverse house bar") in Frieberg and Frieberg's Konjo dictionary which was compiled in the interior of Sulawesi, where people do not know very much about boatbuilding.
17. and described by Horridge, 1978.
18. See, for example, Dick, 1975, 1985, or Chaudhuri, 1985.
19. e.g. Horridge, 1979; Nooteboom, 1940; Liebner, 1990.
20. There is, however, a type of small boat called *jarangka* listed in Matthes' Makassarese dictionary.
21. See e.g. Horridge, 1979:23.
22. At the time of writing research on Buginese navigation is being carried out by the American Gene Ammarell in Sulawesi, so that my brief remarks here can be of a temporary character only.
23. See e.g. Liedermooij, 1854.

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|--|---|--|--|--|---|
| ENG DEU NDL | KEEL KIEL KIEL | ENG DEU NDL | FLOOR WRANGE WRANG | ENG DEU NDL | FUTTOCK; FRAME AUFLANGER OPLANGER |
| IND MNL | LUNAS LUNAS | IND MNL | WRANG GADING-GADING | IND MNL | GADING-GADING GADING-GADING |
| BUG MAK KON MAN | LUNASQA, LAMESA LUNASQA KALEBISEANG LUNAS | BUG MAK KON MAN | KILU KELU KELU KILU | BUG MAK KON MAN | SOLOROQ SOLOROQ SOLOROQ SOLOR |
| BAJ BIN TOM WAN CIA SIO Java, Madura Ternate | LUNAS TENA TENA TENA TENA TENA UNEA LUNAS HERA | BAJ BIN TOM WAN CIA SIO Madura Ternate | KILU GADI-GADI GADI-GADI GADI GADI-GADI GADI; TAJO LUMASO GADING GILU | BAJ BIN TOM WAN CIA SIO Madura | TAJO LIMA-LIMA LIMA-LIMA LIMA-LIMA LIMA-LIMA TAJO TAJUK; GADING |
| ENG DEU NDL | RIB ABOVE DECK SPANTE ÜBER DECK SPANT BOVEN DEK | ENG DEU NDL | STRINGER STRINGER STRINGER | ENG DEU NDL | DECK DECK DEK |
| IND MNL | TAJUK TAJOK | IND MNL | SENTA | IND MNL | DEK; GELADAK DEK |
| BUG MAK KON MAN | TAJO TAJOQ TAJUQ TAJU | BUG MAK KON MAN | LEPE LEPE LEPE LEPE | BUG MAK KON MAN | KATABANG; DEQ KATABANG KATABANG LAPAR |
| BAJ BIN TOM WAN CIA SIO Madura Malaysia | TOROH TAJO TAJO TAJO TAJO TAJO TAJO TAJUK TAJUK | BAJ BIN TOM WAN CIA SIO Ternate Laskari Laskari POR | LEPE SENTA SENTA LEPE-LEPE SENTA LEPE-LEPE DUSU; LUSU SINTA TUTAK; MANZIL CUBERTA | BAJ BIN TOM WAN CIA SIO Java Madura | KATABAH KATABA; DEKE DEKE DEKE DEKE KATABA TATABAN DEK |
| ENG DEU NDL IND MNL | HATCH LUKE LUIK PINTU PALKA PALKA | ENG DEU NDL IND MNL | CENTRE RUDDER MITTELRODER ROER KEMUDI KEMUDI | ENG DEU NDL IND MNL BUG MAK KON MAN BAJ | LATERAL RUDDER SEITENRUDDER ZIJROER KEMUDI SAMPING GULING GULING GULING GULING KAMUDI BANGKILAS |
| BUG MAK KON MAN | PALKA; PALAKAQ PALAKAQ LOE PETA | BUG MAK KON MAN | KAMUDI KAMUDI KAMUDI; KEMUDI KEMUDI | BAJ BIN TOM WAN CIA SIO | KAMUDI BANGKILAS |
| BAJ BIN TOM WAN CIA SIO | BONGKA PETA PALAKA PALAKA PALAKA; BONG. PETA PALAKA PALAKA | BAJ BIN TOM WAN CIA SIO | KAMUDI RUKUI REKUI REKUI ULI ULI | ENG BUG; MAK KON; MAN BAJ BIN; TOM CIA; SIO | APRON BUABUAJA BUABUAYA BUBUAYA BUEBUEA KABUEBUEA |
| Laskari Gujerati Marathi POR | FALKA DHOORO FALKA ESCOTILHA; FALCA ? | Aceh Tidore Ambon Laskari POR | KEUMUDOE REBO (?) KAMUDI SUKAN (Arabic); PATWAL LEME (?) | | |

| | | | | | |
|--|---|---|---|---|--|
| ENG DEU NDL | MAST MAST MAST | ENG DEU NDL | SHROUDS WANTEN WANT | ENG DEU NDL | BACKSTAY; GUY ? BACKSTAG BAKSTAG |
| IND MNL | TIANG (BARRE) TIANG | IND MNL | TAMBERANG LABRANG; TEMBERANG | IND MNL | TAMBERANG JALAN *** |
| BUG MAK KON MAN | PALLAJARENG PALLAYARANG PALLAYARENG PALLAYARANG | BUG MAK KON MAN | PATTAMBERA(NG) TAMBERA PANNAMBERA TAMBERA | BUG MAK KON MAN | PATTAMBERA JALAN PANNAMBERA JALANG PANNAMBERA JALANG TAMBERA JALAN |
| BAJ BIN TOM WAN CIA SIO Jawa, Madura | TIQKALAQ KOKOMBU KOKOMBU KOKOMBU KOKOMBU KOKOMBU TIANG | BAJ BIN TOM WAN CIA SIO Madura Laskari | TAMBIRAH LABARA LABARA TAMBERA TAMBERA TAMBERA; LABARA TAMBERA LABRAN | BAJ BIN TOM WAN CIA SIO Laskari | TALI GAI TALI GAI TALI GAI TALI GAI TALI GAI TALI GAI, TAMBERA JALAN GHAI ? |
| ENG DEU NDL | JIB KLÜVER KLUIVER | ENG DEU NDL | FORESTAY FOCKSTAG FOKKESTAG | ENG DEU NDL | FORESTAYSAIL FOCK FOK |
| IND MNL | JIB DJIP; DJIB | IND MNL | LABERANG L. TOPANG SWAAI TRINGKET | IND MNL | LAYAR TOPAN TRINKET; JIB |
| BUG MAK KON MAN | COCOROQ TENGGGA COCOROQ COCOROQ TANGNGA COCOR | BUG MAK KON MAN | LETENG TARENGKE PAQNUMARIANG TAR. LETEANG TARENGKE | BUG MAK KON MAN | TARENGKE TARENGKE TARENGKE TARENGKE |
| BAJ BIN TOM WAN CIA SIO Laskari POR | SOSORO EKEDUA JIB BOYARONA | BAJ BIN TOM WAN CIA SIO Madura POR | TETEAN L. ANJUH SUAI JIPU SUAI JIPU SUAI JIPU SUAI JIPU SUAI JIPU SUAIYI ESTAY DO TRAQUETE | BAJ BIN TOM WAN CIA SIO Madura Bali Laskari FRA ITA ESP POR | LA:MAQ ANJUH SOSORO; JIPU JIPU SOSORO; JIPU KAPABELO; JIPU JIPU LAJUR PANYUCUR COCOR TRIKAT; TRINGKET TRINQUETTE TRINCHETINA TRINQUETILLA TRINQUETILHA |
| ENG DEU NDL IND BUG MAK KON | TRADITIONAL.FORESAIL TRAD.VORSEGEL TRAD.VOORZEIL L.TOPAN TRADISIONAL KALEWERE KALEWERE KALEWERE | ENG DEU NDL IND MNL BUG KON MAN | TOPSAIL TOPPSEGEL TOPZEIL TOPSEL TOPSEEL TAPSERE;TAPPUSERE TAMPASEQREQ TAPSEL | ENG DEU NDL IND MNL BUG MAK KON MAN | SHEET SCHOT SCHOOT DAMAN; KELAT DAMMAN; KELAT DAMANG; BAJA-BAJA DAMANG; BAYA-BAYA KALLAQ; BAYA-BAYA BAYA-BAYA |
| ENG BUG MAK KON MAN BAJ BIN TOM WAN CIA SIO IND | SAIL, unsp. SOMPEQ SOMBALAQ SOMBALAQ SOBAL LA:MAQ LAYARE LAYARE LAYARE PANGAWA PANGAWA LAYAR | BAJ BIN TOM WAN CIA SIO | CANGKING TAPUSELE TAPUSELE JIPU WAWO PANGAWA KOKODI TAPUSELE | BAJ BIN TOM WAN CIA SIO Sunda Java Madura Laskari Gujerati | KILLAQ KALA KALA KALA KALA KALA KELAT KELAT; DAMAN KELAT DAMAN DAMAN |

| | | | | | |
|---------|--------------------|---------|---------------------|---------|-------------------|
| ENG | HALLIARD | ENG | DOWNHAUL | ENG | BOOM-TOPPING LIFT |
| DEU | FALL | MNL | UTARA BARRE SEEL; | DEU | DIRK |
| NDL | VAL | | STINGGI | NDL | DIRK, KRAANLIJN |
| IND | ANJA | BUG | PASATINGI; PAPPURUQ | IND | TALI PENAHAN BOM |
| MNL | ANJAH; BUBUTAN | KON | PAMURUNG | MNL | MANTIL BOOM |
| | | MAN | PAPURU | | |
| BUG | BUBUKANG, ANJA | TOM | PAPURUQ | BUG | MANTELEQ |
| MAK | BUBUQKANG | Laskari | UTARAQ | MAK | PAMMANTING ? |
| KON | BUQBUKANG | | | KON | MANTELEQ |
| MAN | BUBUKANG | | | MAN | MANTEL |
| BAJ | SINTAKANG | | | BAJ | MANTEL |
| BIN | WINI | ENG | VANG | BIN | MANTE |
| TOM | VINI | MNL | TARNAAL | TOM | MANTE |
| WAN | WINI | BUG | TARNALA | WAN | MANTE |
| CIA | KAHELA | MAK | LOLO | CIA | MANTE |
| SIO | KABINTA | KON | LOLO;TUNTUNG | SIO | MANTE |
| | | MAN | LOLOQ | | |
| Sunda | PEMBUBUTAN | BIN,SIO | BAHU | Laskari | MANTELA |
| Madura | BUBUTAN | POR | AMANTILHO | | |
| Samoa | MAEAE SISI | Laskari | TARNAL, TURNAL | | |
| Laskari | ANJA | | | | |
| POR | ADERICA | | | | |
| ENG | GAFF | ENG | YARD IN LTANJA | ENG | BOOM |
| DEU | GAFFEL | BUG | PAMBAUANG | DEU | BAUM |
| NDL | GAFFEL | MAK | BAU | NDL | GIEK |
| IND | SANGAMARA | KON | BAU | IND | BOM |
| MNL | GAP;PIEK;PEMBAUHAN | MAN | BAUGANG | MNL | BONG;PENGILING |
| | | Sunda | PAMBAHON | | |
| BUG | GAQ | Java | PEMBAWAN | BONG | |
| MAK | GAP? | Madura | PANGBAU;PEMBAWONBUG | MAK | BONG |
| KON | BAU | | | KON | BONG |
| MAN | CAKKENG;GAQ | | | MAN | PELOANG |
| BAJ | PABAUNG MANDIATA | ENG | BOOM IN LTANJA | BIN | BOMU |
| BIN | GAPU | BAJ | PAMBAUNG MANDIA | TOM | BOMU |
| TOM | GAPU | MAK | PELOKANG | WAN | BOMU |
| WAN | GAPU | KON | PELOKANG | CIA | BOMU |
| CIA | GAPU | MAN | PELOANG | SIO | BOMU |
| SIO | GAPU | Sunda, | | | |
| Bali | GAP ? | Java | PENGGILING | Laskari | BUM |
| | | Madura | PANGGILING | | |

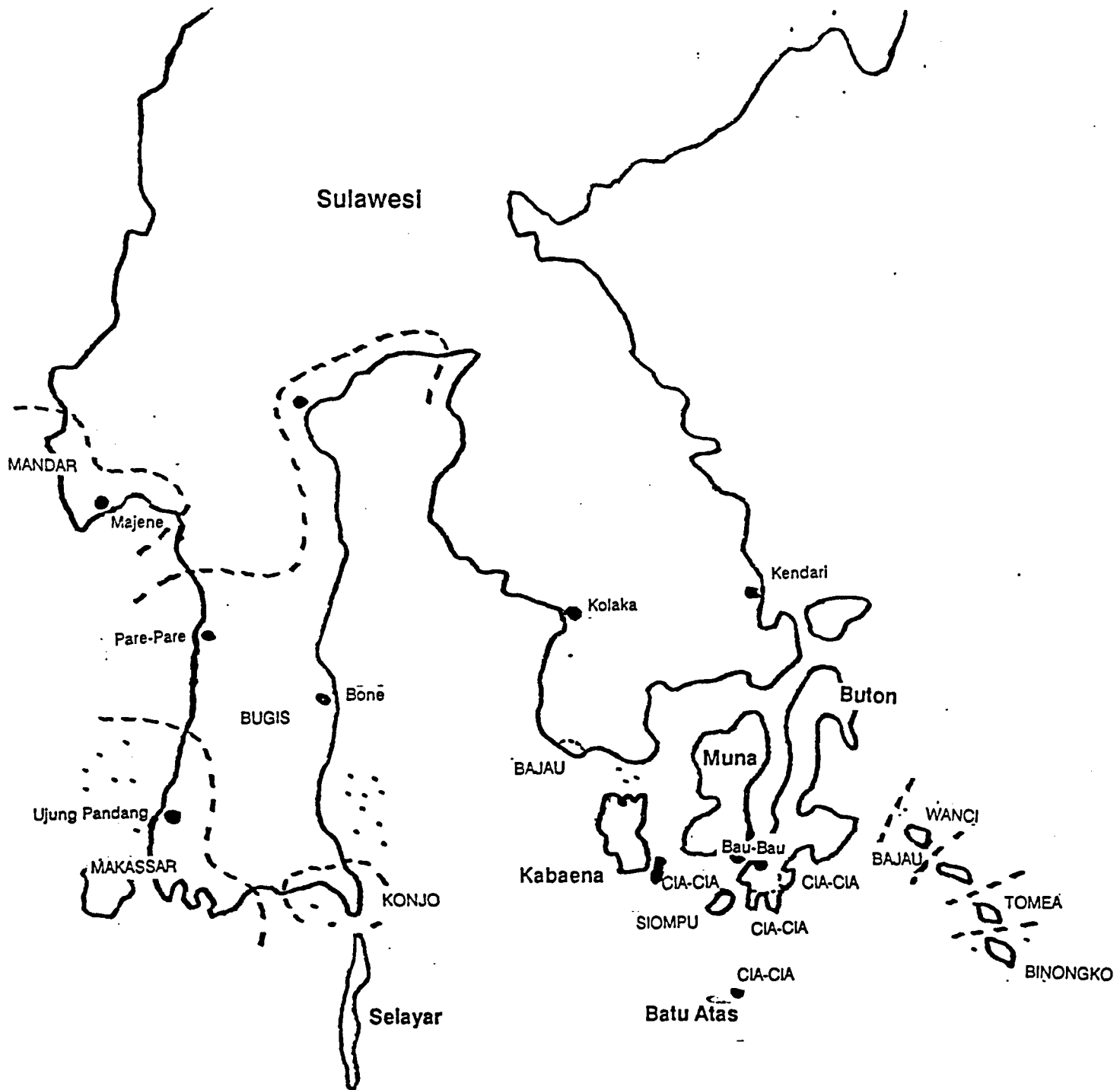


Fig. 1 Map of southern Sulawesi; language names in capital letters

- 1. Jibstay
- 2. Jib
- 3. Forestay/-sail
- 4. Topsail
- 5. Main Sail
- 6. Mizzen
- 7. Gaff
- 8. Boom
- 9. Vangs
- 10. Boom Topping-Lift
- 11. Shrouds
- 12. Backstays
- 13. Halliard
- 14. Sheet

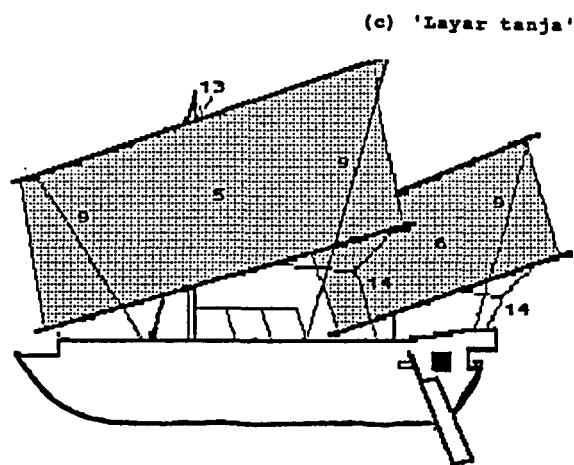
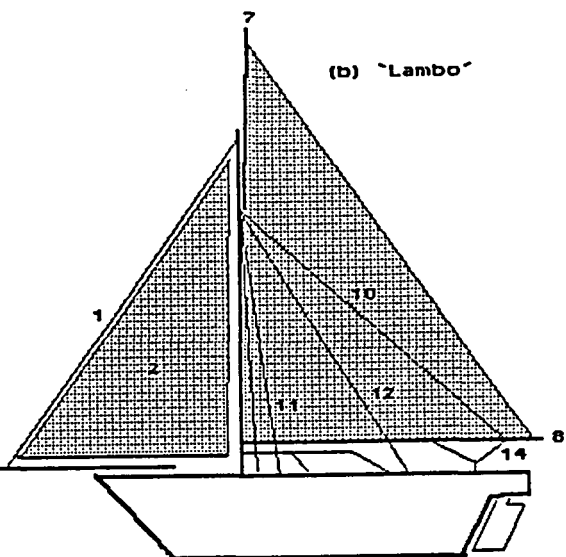
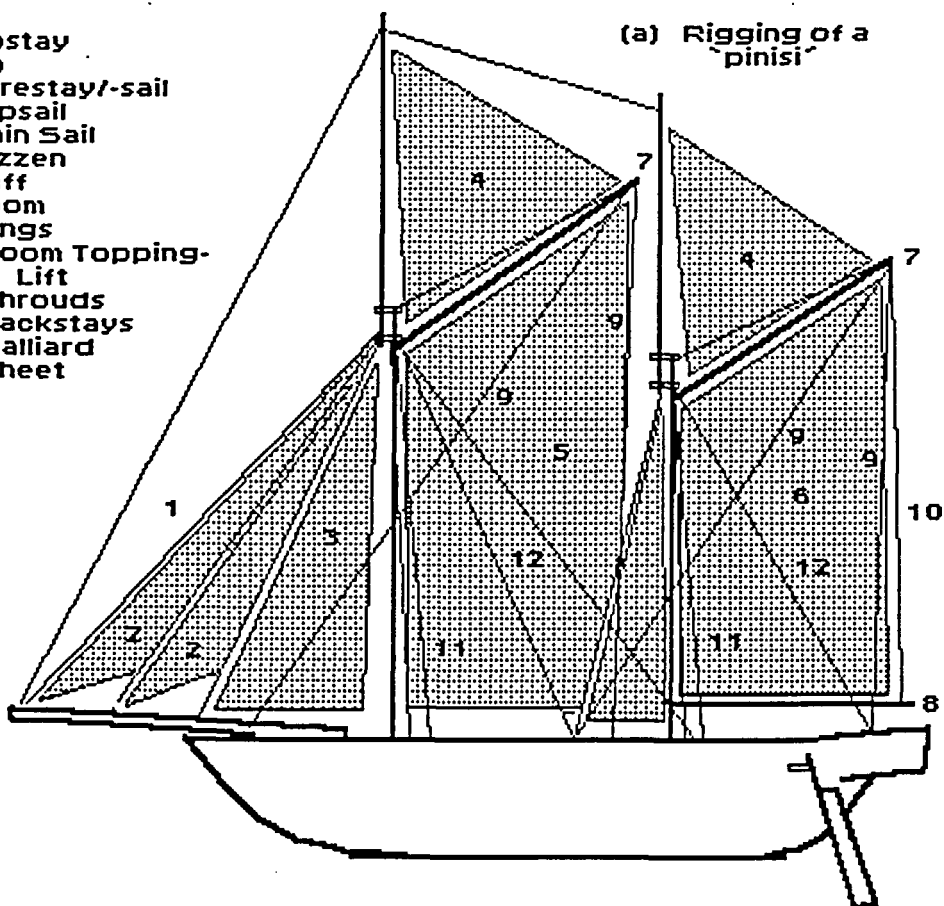
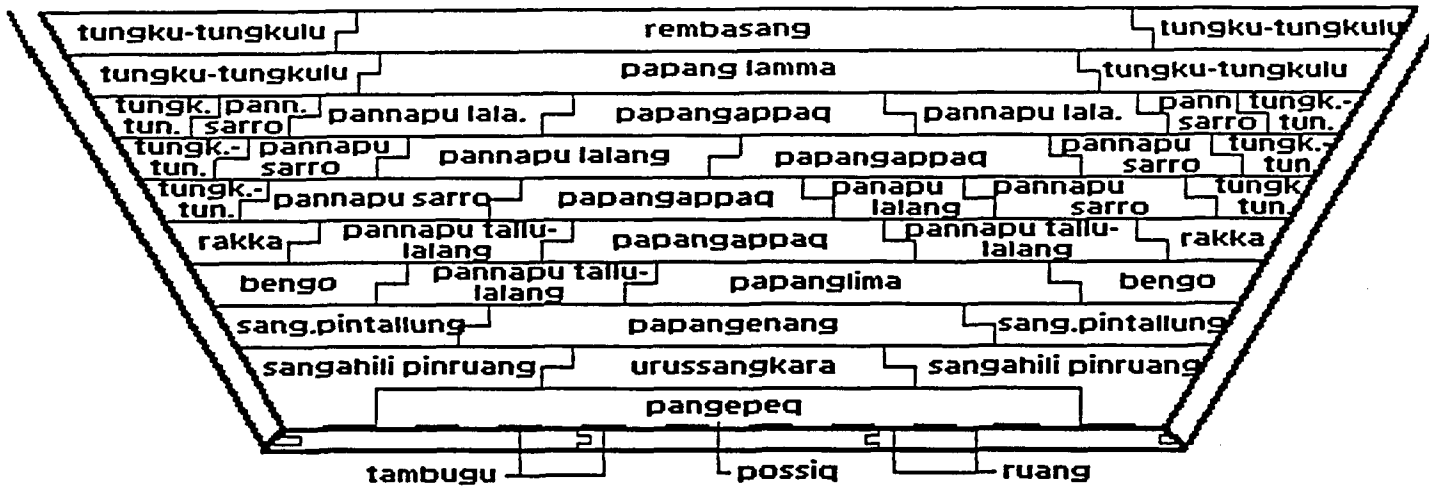
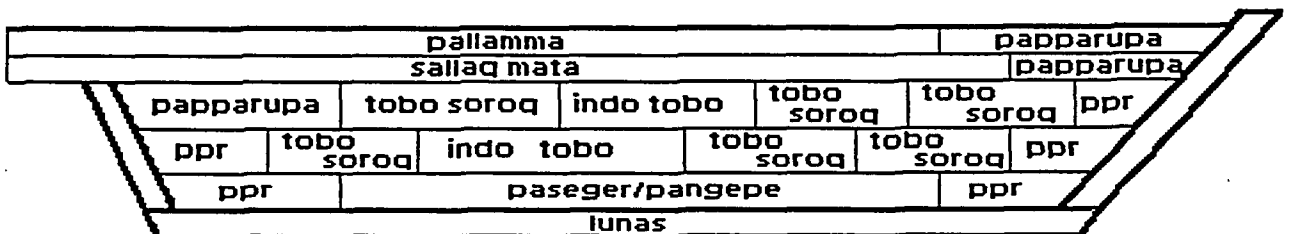


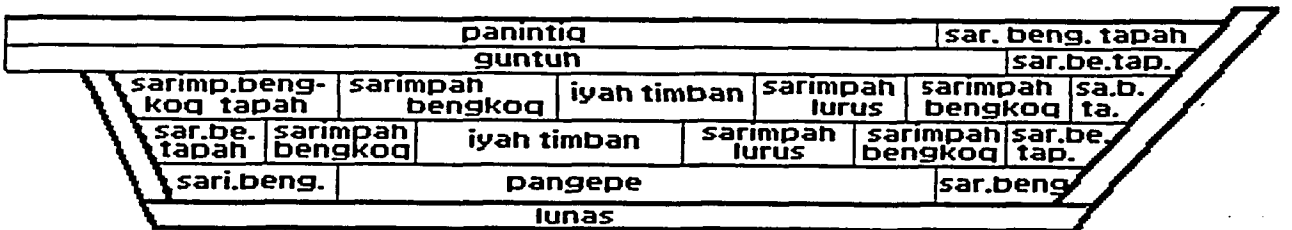
Fig. 2 Three types of Indonesian rigs; drawings not to scale



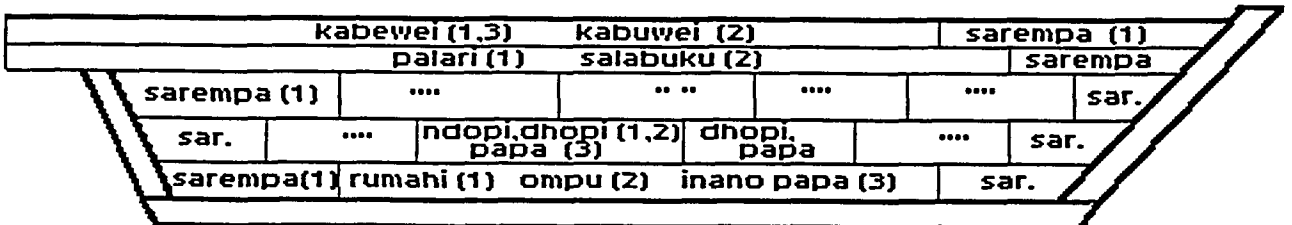
(a) Konjo "tatta tallu" plank pattern



(b) Mandar plank pattern



(c) Bajau plank pattern



(d) Butonese plank pattern: 1 BIN, TOM, WAN; 2 CIA; 3 SIO

Fig. 3 Plank patterns; schematic representations only. For further details see text

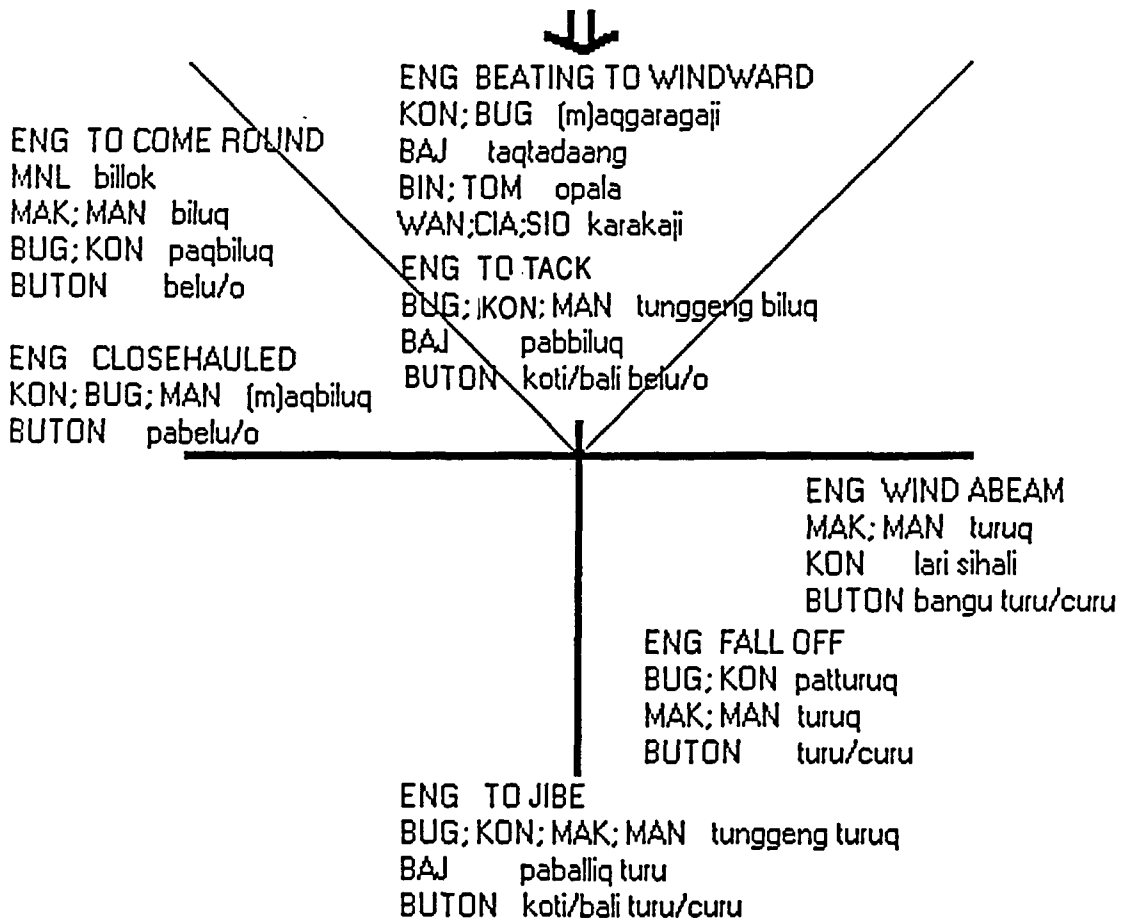


Fig. 4 Courses of a sailing boat in relation to wind direction

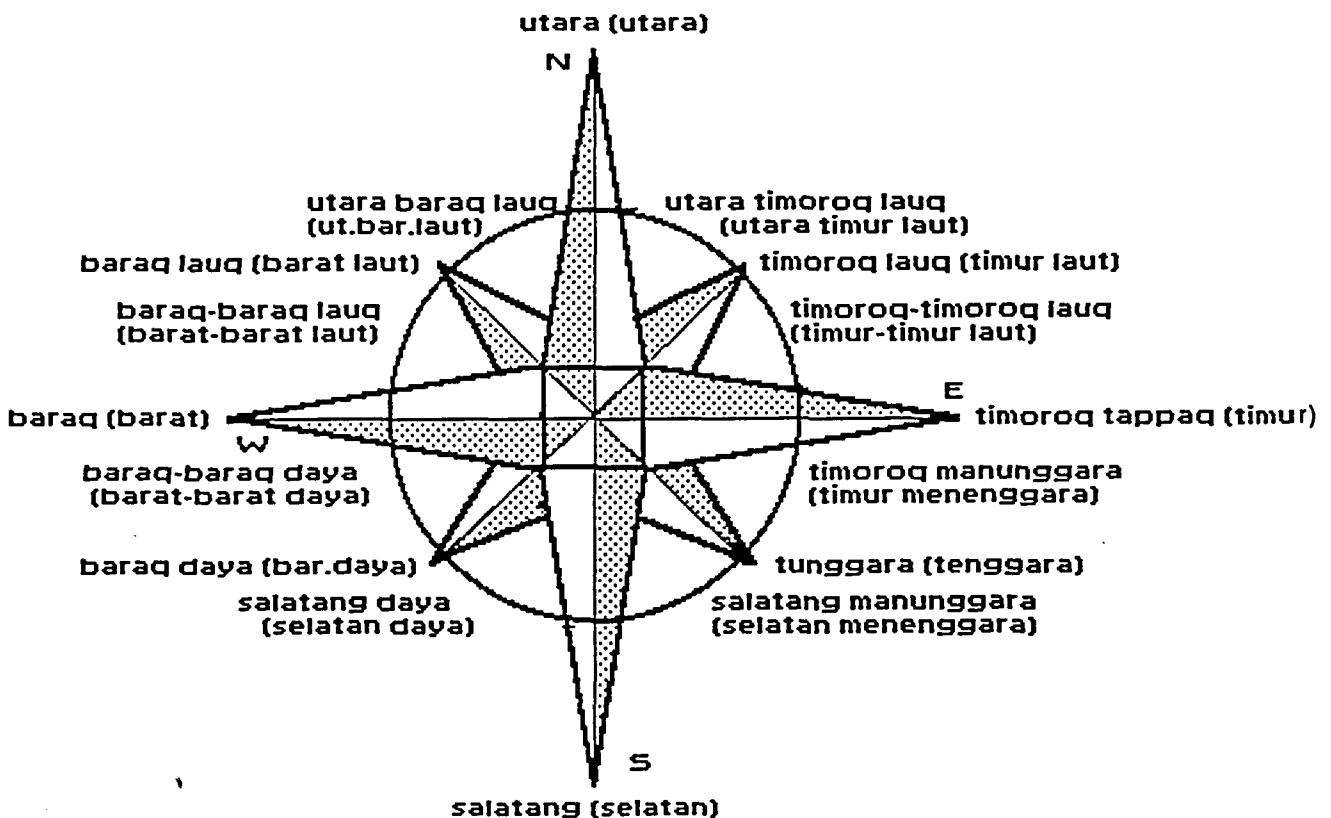


Fig. 5 Konjo (Indonesian) compass card

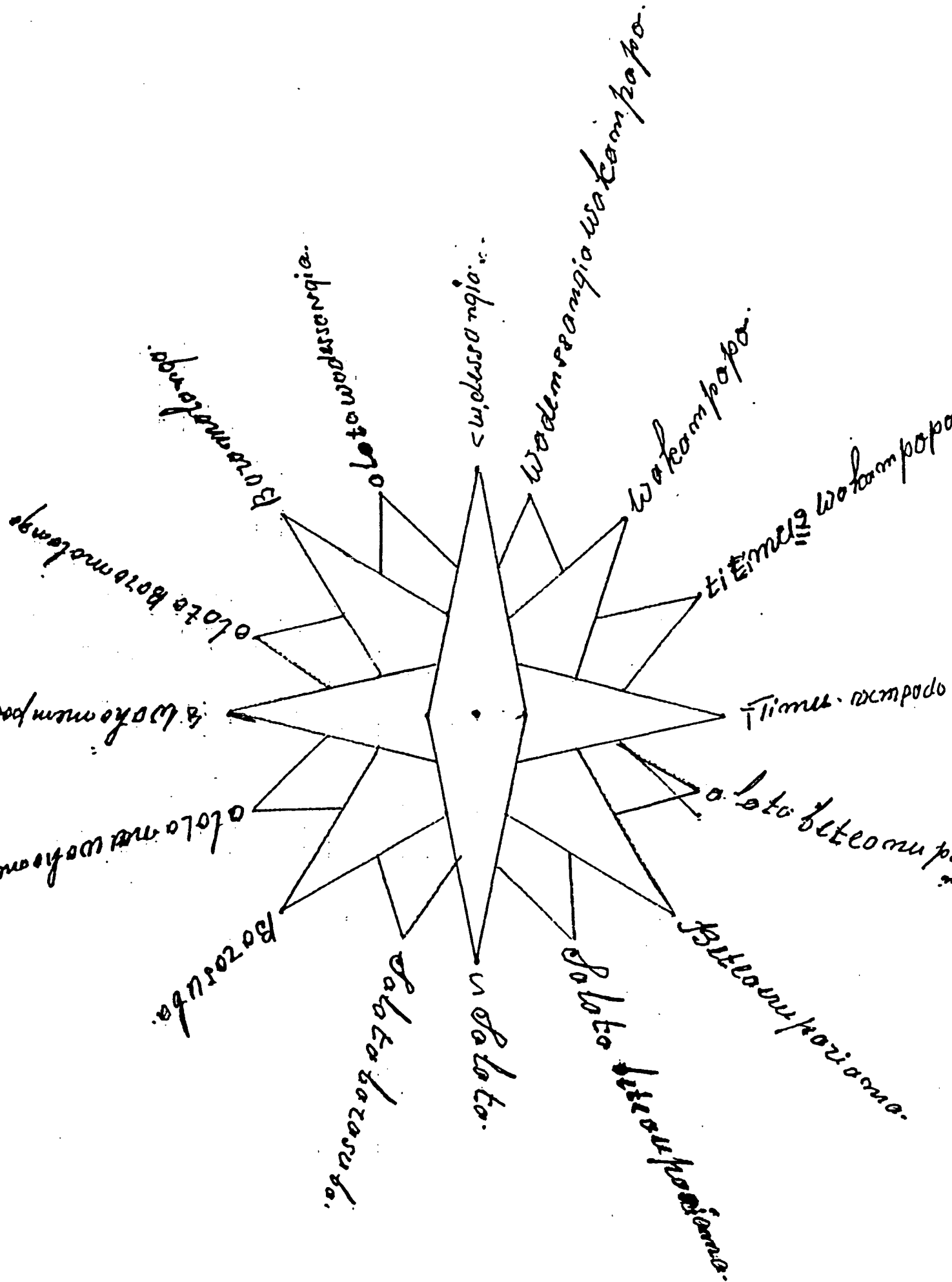


Fig. 6 Butonese compass card made by an old man from Binongko