RELATIONSHIP of the AUSTRALIAN LANGUAGES.

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(Communicated by C. Hedley.)

[With Plates II – IX and Text Figures.]

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In 1903 I began a study of the relations of the Australian languages among themselves, primarily with a view to the question of their genetic unity. In this work I was assisted for nearly a year by Mr. C. H. Marks, Jr. The larger part of all the lexical data available being assembled in E. M. Curr's Australian Race,[1] the study was based on this work, supplemented by some twenty vocabularies published subsequently,[2] which contributed information on a number of important areas which Curr was forced to pass over in silence. The plan followed was this. The native terms for a number of fundamental concepts, chiefly nouns and mostly such as denoted body parts, were transcribed as well as might be into a standardized orthography. This procedure of course introduced an element of conjecture but seemed unavoidable in view of the phonetic inadequacy and diversity of the orthography in which most Australian vocabularies have been rendered. Forms which were patently similar were then reckoned as going back to a common origin, without any endeavour to explain differences through sound shifts or on the basis of a refined analysis of the original recorder's peculiarities of transcription. This was a summary method: but the undertaking was a pioneer one, in which an over-accurate technique would have been

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[1] Four volumes, Melbourne and London, 1886-87.

[2] See Fig. 3 and list of works supplementary to Curr, below.

sterile. All the occurrences of a single stem and its variants were then plotted on a map. At first the several fundamental stems for one concept, such as "eye," were represented by different colours on one map. It was soon found that for most concepts the distribution of stems was so irregular, and their number so great, that such maps yielded no very clear picture. The data for each concept were therefore entered on several maps, each of which showed the distribution of a single stem, or three, four, or five stems if the geographical range of these was comparatively narrow. A selection from these plots (maps 1 — 48) is the basis of the discussions in the present paper.

This method suffers, from a precise philological standpoint, through brushing over all finer detail. It cannot therefore be free from errors. In compensation, however, it should yield a perspective which with finer technique would be obtainable only through an almost lifelong preoccupation with the subject. The plan also has this merit: if a stem occurs in all parts of the continent, even though it may be lacking from this or that individual dialect, the fact is driven home forcibly by the map. If on the other hand it is widely spread but wholly lacking from a certain area, or if, vice versa, it occurs only in a certain area, these tracts are made to stand out vividly. In this way it was hoped that if there proved to be among the languages of the continent several stocks of distinct origin, or that if a single family had become diversified into several well differentiated branches, these facts would be revealed with convincingness. Some salient conclusions, at any rate, might be drawn; and preliminary as these might be, they would nevertheless furnish guidance in the chaos which has characterized Australian linguistics.

For years other duties prevented prosecution of the work, to which I was able to come back only from time to time.

Schmidt's Studies and Conclusions.

In 1908 Father W. Schmidt published a preliminary classification of the languages of Australia.[1] In 1912 he began in *Anthropos* an intensive study, the results of which appeared for a number of years. These articles in turn he revised and issued in book form in 1919.[2] Schmidt's studies have been much more laborious and intensive than mine. He arrives at conclusions somewhat different from those which I had formulated. These conclusions seem to me to be at least in part the result of his method of interpretation.

Our methods of attack are the same, except that he has been more painstaking and has concerned himself with a much larger number of words, besides having included certain materials which the suspension of my work a number of years ago caused me not to reach. Schmidt reproduces the most important portions of his data in standardized orthography, and classifies the almost numberless dialects into groups. Up to this point there is no question that his procedure is more exhaustive than my rather cursory one. When, however, it comes to interpretation, Schmidt largely abandons the natural method of linguistic comparison, which regards similarities as *prima facie* evidence of genetic relationship, and sufficient dissimilarity as proof or at least presumption of lack of common origin. Instead, he has thrown himself into the arms of the "culture history method" of Graebner—a theory which holds that there have occurred several distinct populational and cultural migrations into Australia. Schmidt analyzes his material to find evidence of these successive strata, each of which is supposed to have brought with it one or more languages. He thus intermingles analysis of present phenomena with synthesis of hypothetical former ones, instead of proceeding

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[1] Man, VIII, p. 184.
[2] Die Gliederung der Australischen Sprachen, Wien, 1919.

viâ an analysis of existing conditions to a comprehensive
synthetic understanding of them, and only then evolving
inferences as to the past. In short, he partly explains the
known present by the unknown past; which is also the
method of Graebner's ethnology.

The result is that Schmidt often finds in a given language
remnants of several stocks that no longer exist, and traces
the borrowings and mixtures of constituents which we do
not know as such and which he has scarcely begun to sub-
stantiate. Another consequence is that he touches the
problem of genetic relationship only obliquely. He does
maintain that the languages of the larger southern portion
of the continent are related and that those of the smaller
northern area are distinct, not only from the southern
family but also among themselves. Since however most of
the southern languages are the product of varying degrees
of admixture from three or four migrations, each of which
brought its own distinct culture and speech, the relation-
ship that Schmidt admits for these southern languages is
evidently not of the kind which is usually understood by
philological relationship: namely, a common origin with
subsequent diversification.

While this peculiar method of interpretation runs through
Schmidt's work, it fortunately has not prevented him from
establishing classifications on the basis of modern conditions.
His coloured map summarizes these admirably. In other
words, he is much too able a linguist to allow himself to
fall completely under the sway of a historical theory. He
does however considerably interweave his survey classifi-
cation of the existing data with his hypothetical recon-
struction.

This circumstance has led me to reassemble and formulate
my own findings after having laid them aside for a number
of years under the impression that they had been superseded

by Schmidt's work. However rough my technique has been, I believe I have at least approached the material objectively and without theoretic preconceptions. Wherever my findings agree with Schmidt's they will therefore tend to rescue his from the cloud of hypothesis which hangs over his work. Where we differ, doubt will be more definitely established and renewed investigation stimulated.

Evidences of Continental Unity.

The first inference which the mappings seem to allow is that Schmidt's fundamental separation of the north and south Australian languages is unnecessary. He has indicated this demarcation by a red line running across the map of the continent from latitude 17° on the east coast to 19° on the west,[1] with a great southward indentation to latitude 28° in the centre to include the Arunta, and a few of the tribes on their northeast, with the northern group. This line has this validity: speech to the south of it is obviously much more homogeneous than on the north. In the northern division even adjacent languages often differ profoundly. Why this is so, remains to be determined. It probably cannot be ascertained until information on the northern languages is a great deal fuller than at present.

Nevertheless stem after stem is found with the same meaning on both sides of the line. The majority of the plottings show such a distribution. In nearly a third of the cases the double occurrence is decisive. That is, a stem appears not only on both sides of the line but in practically every portion of both northern and southern Australia. Maps 1, 7, 11, 13, 15, 17, 19, 25, 28, 37, 40 illustrate this condition.

It is not maintained that every stem plotted in these maps occurs in every single north Australian dialect. In

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[1] In the 1919 reissue, a corrigendum to the map makes the line begin at latitude 15° on the east coast, so as to include Koko-Yimidir in the southern division.

so definitely established a family as Indo-European a stem has frequently disappeared from a whole division, or within a division from a language. Positive cases count much more heavily than negative ones in problems of this sort. The preponderance of weight which must be assigned to them is greater in proportion as the languages are imperfectly known. If all the knowledge we possessed of two such closely related languages as English and German lay in a few vocabularies recorded by travellers or non-philological residents, we should have to rate the words *dog* and *hund* as dissimilar stems for the same simple concept because we should not know that each recurred in the other language with the special meaning of *dogge* and *hound*. If ever we come to have a fourth as much knowledge of the Australian languages as of the European ones, it may begin to be time to lay weight on missing stems. Until then a comparatively small number of positive similarities will go far in establishing a presumption of genetic relationship.

To the foregoing may be added a number of further resemblances which are less widely distributed, but which involve stems that appear at least in several districts of both northern and southern Australia. These are plotted in maps 2, 4, 5, 6, 8, 12, 16, 21, 27, 29, 31, 32, 34, 37, 38, 39, 46, 47.

Admitting that the method used is somewhat in the nature of a reconnaissance, we must nevertheless conclude, it would seem, that the indications warrant a belief in the genetic unity of all the Australian languages.

Grouping of the Southern Languages.

When now the branches or subdivisions of this family are examined, it appears that the dialects of certain areas form much more consistent units than others. One of these units which began to stand out from the beginning of my comparisons and plottings is the Narrinyeri of the lower Murray.

Maps 5, 12, 14, 22, 27, 32, 45, 48, show this as a more or less isolated area.

The same holds of Schmidt's Darling group, upstream from the last, as revealed by maps 10, 14, 22, 27, 35, 44, 46 and in a less striking degree by several others.

A third though somewhat less distinctive group is that in Victoria adjoining the two last on the south: see maps 24, 36, 42, 43.

Schmidt's Yungar in the extreme south-west of the continent forms a well marked unit which stands out with but little variation of limits in maps 6, 8, 19, 25, 34, 45.

As regards the entity and boundaries of these four branches, my survey thus corroborates Schmidt's findings exactly. On the whole it also confirms his great North Central and South Central groups, which embrace the region between two lines, one stretching between the mouths of the Murray and Mackenzie, the other between latitude 17° on the east coast and longitude 134° on the south coast. The North Central group especially, which embraces the heart of Queensland, I had early noted as a solid unit. It shows thus in maps 2, 4, 5, 14, 22, 31, 36, 40, 44, 47, 48. The limits are not so precise as in the foregoing units, but this is a probable expectation for a larger area. The South Central group is considerably less defined on my maps. It appears as an area of moderate coherence nearly enclosed by the compact Narrinyeri, Darling, North Central, and Arunta groups. I should strongly incline to detach the Darling group from it.

Schmidt's large South-west has only the degree of coherence which so vast a tract, and that marginal to a core of desert, might be expected to possess. As a unit, inclusive or exclusive of Yungar, it is far from impressive on my maps. Still, maps 2, 6, 20, 21, 26, 31, 40 suggest its prob-

able reality. Several of these cases are negative—that is, a widely spread stem is lacking for all parts of the South-west.

Schmidt's Yuin-Kuri group of the New South Wales coast does not give me the impression of being a true distinctive unit. The same seems to apply to his Wakka-Kabi group, north and north-west of Brisbane. I should incline to connect the inland Wakka with the adjacent North Central division, Kabi with the other coast languages. In fact the East Coast languages from 37° to 17°, or even beyond, seem to constitute a natural unit.

This leaves, in southern Australia, Schmidt's Wiradhuri-Kamilaroi of interior New South Wales as the only division of any size unaccounted for. I find it difficult to do anything with the languages of this area. Schmidt looks upon them as a mixture of three of his strata, which remain best represented in the Yuin-Kuri, East Coast, and Central divisions respectively. Translated into objective terms, this means that the Wiradhuri-Kamilaroi languages are difficult to separate from all of their neighbours. On this point of agreement we can rest. Schmidt may be right in his view that modern Wiradhuri-Kamilaroi is the result of an ancient mixture: he certainly has not proved it.

This gives, for southern Australia, the following groups, in approximate order of the positiveness of their distinctiveness: Narrinyeri; Darling; Yungar; Victoria; North Central; East Coast; South Central; South-west; Wiradhuri-Kamilaroi. (See Fig. 1).

Grouping of the Northern Languages.

For northern Australia the data are much scantier and the local diversity is usually greater, so that a classification of any pretensions to permanent validity would be premature. Schmidt's grouping seems a conveniently formal rather than a natural one and can therefore scarcely be historically founded. He distinguishes languages that end in (1)
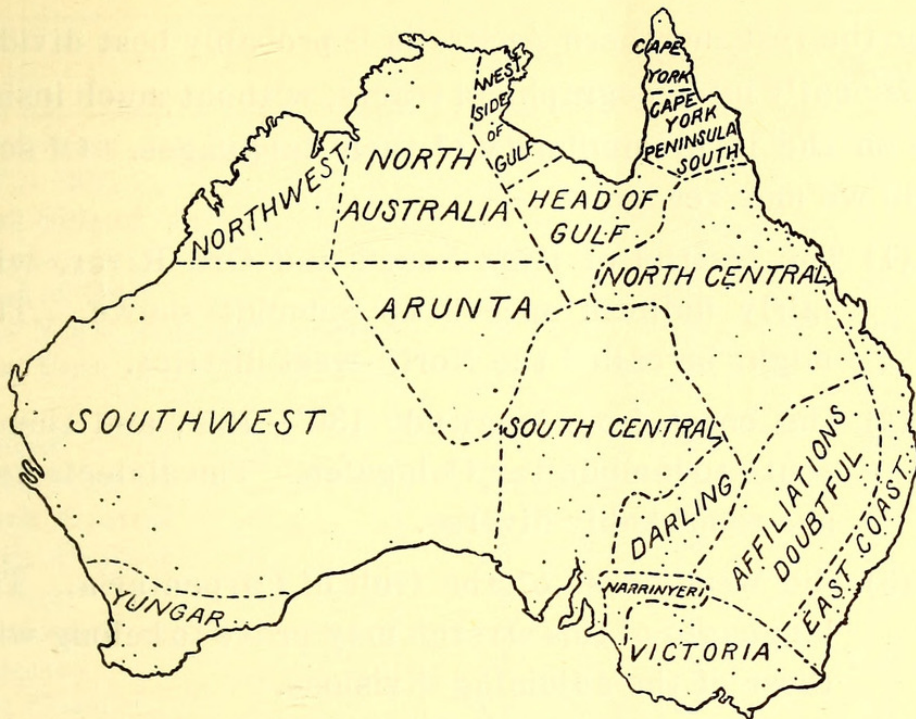
Fig. 1. The principal divisions of the Australian family of languages, revised from Schmidt's classification.

consonants, (2) sonants, (3) vowels, but these are geographically scattered. My distribution maps reveal several areas in which speech is comparatively uniform or at least sharply marked off from adjacent areas. One is the region of the Arunta, in which initial consonants have frequently been lost.[1] Another is the tip of Cape York peninsula, whose group of dialects is on the whole the most separate of any in Australia. In fact, a conservative attitude must leave it somewhat questionable whether they are part of the Australian family at all. A third rather uniform area extends south from the head of the Gulf of Carpentaria to the North Central group. This is the tract which Schmidt considers as having been the focus of meeting of the north and south Australian languages, and has designated by a sort of swelling of his red line of demarcation.

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[1] Eye, al-kna ex mil; ear, ilpo-kita ex talpa ; teeth, ardita ex karditi; tongue, alinya ex taling; beard, ongi-nya, arni-ngya ex naka; foot, ini-ga, in-ga ex tina; blood, irkna ex kuna; bone, onguna ex kungun; excrement, udna ex kuna, kudna; black man, urlu-, arila ex karu; fire, ura ex kun-. Similar "apocopes" are fairly numerous in dialects 53, 58 - 60, 61 - 65, 93 (Curr's numbers) and are encountered elsewhere.

For the rest, northern Australia is probably best divided provisionally into geographical tracts, without much insistence on the inner similarity of their languages. Of such tracts we may recognize :—

(1) The district of King Sound and Ord River, with fairly uniform speech as Schmidt shows. This might be called the North-west district.

(2) The coast from longitude 130° – 135°, and thence south to include the Chingalee. The dialects here are remarkably diverse.

(3) The west coast of the Gulf of Carpentaria. The languages of this stretch may prove to belong with those of the adjoining divisions.

(4) Cape York peninsula between latitude 17° and 13° or 14°.

With the Arunta, head of the Gulf, and Cape York groups, this makes seven tentative areas in the north. (See **Fig. 1.**)

Differentiation of the Groups.

These groups of the south and north may be compared to test the relationship which I find to exist between the two divisions. I give the results in three columns. The first shows how many of the 11 stems plotted in maps 1, 7, 11, 13, 15, 17, 19, 25, 28, 30, 40 occur in each group, as represented by one or more or all of its dialects. Each of these stems appears in a majority of the southern and in a majority of the northern groups. The second column gives similar figures for 22 other stems each of which occurs in at least two southern and two northern groups. The distribution of these is shown in maps 2 (*bis*), 3, 4, 5 (*bis*), 6 (*bis*), 8, 12, 16, 21, 27, 29, 31, 32, 34, 37, 38, 39, 46, 47. The third column combines the figures for the first and the second.

	11 most widely distributed stems.	22 widely distributed stems.	Total for 33 stems.
North-west	10	5	15
130° – 135°	9	13	22
West Side of Gulf	7	5	12
Arunta	9	4	13
Head of Gulf	10	15	25
Cape York Peninsula South	8	12	20
Cape York	3	5	8
Yungar	7	6	13
South-west	10	11	21
North Central	11	17	28
South Central	10	12	22
Darling	6	5	11
Narrinyeri	8	9	17
Victoria	10	8	18
East Coast	11	13	24

A certain allowance must be made on account of the number of dialects in a group or the number of vocabularies available from it. Thus the low figure for the group on the west side of the Gulf of Carpentaria is probably to be laid to my having had but three word lists from this tract as against eight or ten from each of the adjacent districts. With an equal volume of material, it seems likely that this group would align at least as closely as the one on its west with the remainder of the continent. In part, too, but probably only in part, the low figures for the Darling and Narrinyeri groups can be attributed to their small area as compared for instance with the North and South Central districts. A vast tract of many tribes each with its dialect is more likely to preserve an ancient stem with its original meaning somewhere in its area than is a little district, which will tend to preserve or lose it as a unit.

Still, some inferences obtrude. There is no group that stands wholly aloof. The most divergent from all the others is unquestionably that of Cape York. The next most specialized in the north, considering its size and central

location, is the Arunta. The northern group which has easily the most numerous southern resemblances is that at the head of the Gulf of Carpentaria; which is in accord with Schmidt's findings. In the south, the North Central, East Coast, and South-west evince, in the probable order named, the greatest affinity to the north. Yungar suggests considerable specialization, as might be expected from its restriction and marginal remoteness; Victoria and Narrin-yeri less than might be anticipated. The figure for Nar-rinyeri is in fact rather high, considering the small area of the group. Darling, on the other hand, considering that it lies more northerly than Narrinyeri and in contact with more other groups, ranks surprisingly low. This then would seem to be a more distinct group than Schmidt has recognized it to be. We are of course dealing here with a very limited number of stems, which may prove not to be wholly representative of the vocabulary as a whole. But there is no reason to suppose that they happen to be thoroughly unrepresentative; and some presumption must therefore remain that the Darling group is well specialized.

A Typical Case: Water.

Fig. 2, which shows the principal forms of the words meaning water, seems to me to epitomize the linguistic situation in Australia. Disregarding isolated stems, we have about 200 sources giving us obviously comparable forms for this idea. These 200 words fall into about eight classes, according to their form. Thus words like wara, wala, wade, form one class, which is indicated on the map by the figure "8." Now the distribution of this type of stem ranges from the North-west to Head of the Gulf to Wiradhuri-Kamilaroi to Victoria. Stems of several of the other types are as widely and randomly distributed. Either then (assuming the eight word types to be radically dis-similar) we are dealing with a number of different families
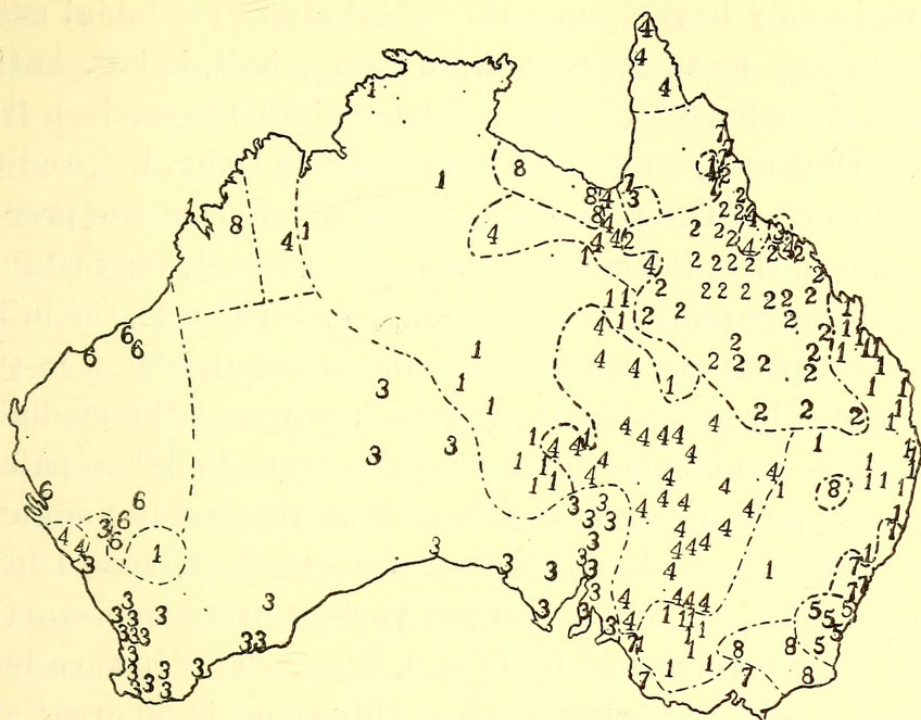
Fig. 2. Distribution of stems meaning water: 1 kata, kala, kana; 2 kama; 3 kapa; 4 ngapa; 5 ngadjung; 6 bapa; 7 bara; 8 wara.

which however have become geographically interspersed and blended, as Schmidt holds; or we have only one family in which separate stems, comparable to "water," "liquid," "moisture," "sap," have come, one here and one there, to take on the meaning of "water." In either event, the distribution does not follow the lines of dialect grouping accepted by Schmidt and myself. This fact shows that these groups must not be regarded as very deeply differentiated, and emphasizes the connections that exist between them.

But our eight word types evince enough similarity and transitional forms to support a tolerable case for the belief that they are at bottom nothing but variants of a single stem. Let us begin with number 3, which appears as kapi, gaba, kowi, kowara, and may be reduced to a schematized kapa. Type 2, kumum, kamu, kam, komo—schematic kama

—differs only in replacing the labial stop by a labial nasal. This brings us to type 1: kun, kong, kali, kalan, katini, kucha, kwacha, etc. These forms might have arisen from m altering to n, which in turn gave rise to ng, l, t, and the latter to ch. The remaining types differ from the preceding ones in that initial k is replaced. Class 4, for instance, comprises ngapa, napa, ngoko, noko, muku; that is, the initial palatal stop is altered to the palatal nasal, which in turn sometimes becomes dental or labial; whereas the medial or final consonant sometimes changes from labial to palatal stop. Type 5, ngadyung, differs from the last but slightly, ng-dy against ng-k. It also connects with type 1 in its forms kucha, katini. Another variant from our starting point kapa is furnished by type 6, bapa. This in turn leads to type 7 bari or pari; and from this there is no great step to 8, wara.

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    1. Kana > kanga, kala, kata > kacha
       |
    2. kama
       |
    3. kapa
          /\
 4. ngapa   6. bapa
    |          |
 5. ngadja  7. bara
                 |
          8. wara
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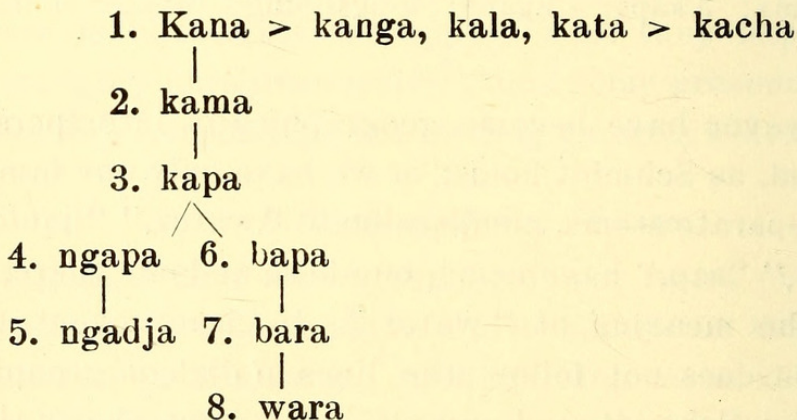
It may be added that types 2, 3, 4, 5 all appear occasionally without initial consonant: thus amu, awi, uku, idyong.

Now there is certainly no proof of the original identity of these eight type forms. It would be mere guessing to assert which one was original. The involved sound shifts, such as p > m > n > ng and k > ng and k > b > w, while authenticated in other languages, are as yet undemonstrated as at all general between the particular Australian dialects involved. And the vowels have been handled here in the

most drastically schematic fashion.   By the ordinary standards of philology, nothing more than a suggestion has been provided.   But there neither exists the quality of material nor has it been subjected to an intensive enough analysis to apply to-day the standard of accuracy exacted in Indo-European and Semitic philology.   In view of this present limitation on possible proof, I cannot but entertain a feeling of considerable probability that all these eight types of forms, and consequently all but a scattered and inconsistent minority of Australian words for water, go back to a common origin.   At any rate, this seems a more simple inference than to explain these forms as due to a mixing of several stems that once were radically different because separate in origin.

Very similar conditions, I believe, will be found to exist in the case of other stems, as soon as these are brought together in a purely empirical manner.   A positive assertion of genetic relationship, then, would still be premature to-day; but its likelihood seems strong.   It will undoubtedly be wisest to suspend judgment until the evidence is sifted more analytically.   Yet if an opinion is to be rendered now, it does appear that the assumption of the genetic unity of all the Australian languages is a safer one to make than the assumption that they are derived from several origins.

Curr's Classification.

Something should be said as to Curr, the pioneer in this field, whose compilation Schmidt and I have used so largely.

Curr's classification is not really a linguistic one.   In spite of his three volumes of vocabularies, he institutes specific comparisons only between a few words in several dialects.   What Curr appears actually to have done was to plot the distribution of circumcision and subincision.   The Central area or division in which these practices are found gave him by exclusion his Western and Eastern areas.   For

some reason his "Darling tribes" (inside the broken red
line on his map) are included in the Central division
although they do not circumcise. This exception appears
to be made on account of a native myth that this group of
tribes is descended from a single male immigrant. Although
coming from a Central group, this man would have no
motive for mutilating his own sons, Curr reasons, so they
never learned the customs which distinguish the other
Central tribes!
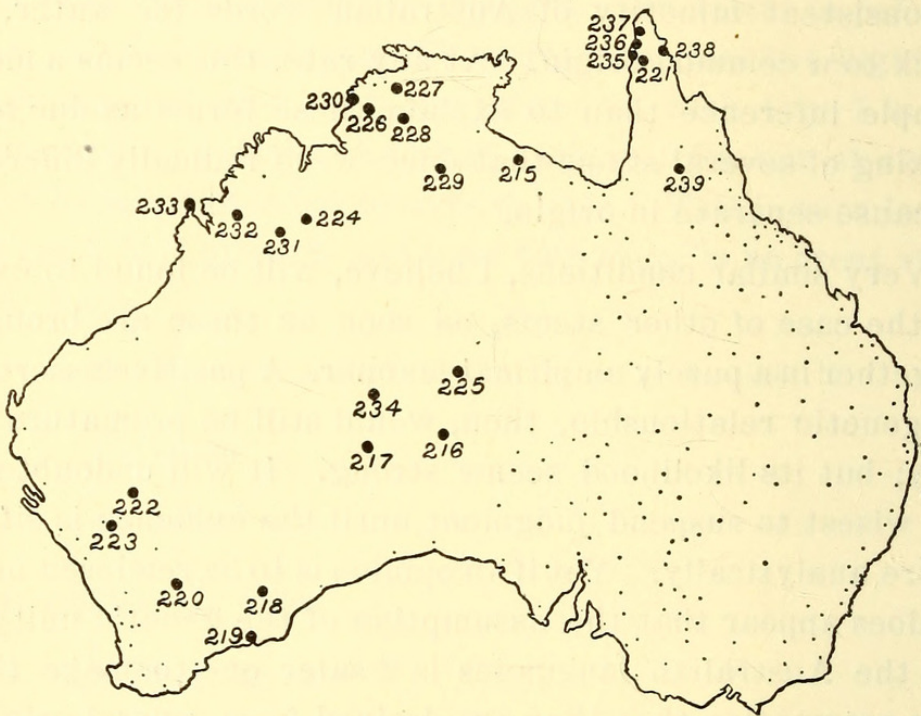
Fig. 3. Dialects from which vocabularies were used that are
not in Curr's work.

Curr's Western division includes and excludes parts of
Schmidt's and my Yungar and South-western groups. His
Central Division lumps into one Northern Australia, Head
of Gulf, South Central, Darling, Narrinyeri, Arunta, and
most of the South-west. His Eastern division includes
Cape York, Cape York South, North Central, East Coast,
Wiradhuri-Kamilaroi, and Victoria. His classification is
therefore not so much actually incorrect as superficial. His
line between the Central and Eastern divisions is every-

Eye. Map 1, mil (crosses).   Map 2, kur (hollow squares), til (triangles).

Ear. Map 3, bina (hollow triangles).   Map 4, wim (squares).   Map 5, manga (triangles), nuri (hollow squares).   Map **6**, tulpa (circles), kulka (crosses).
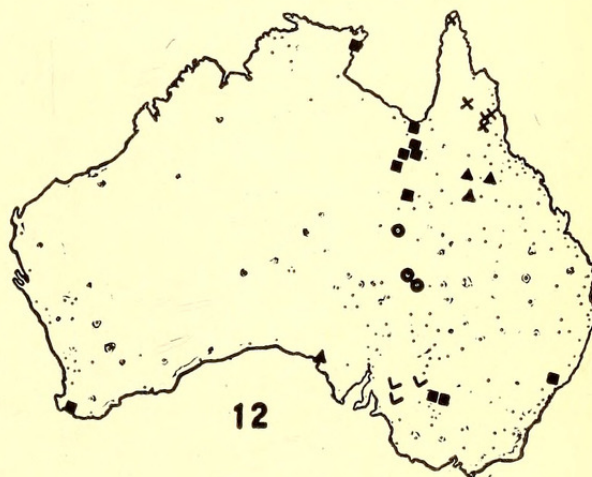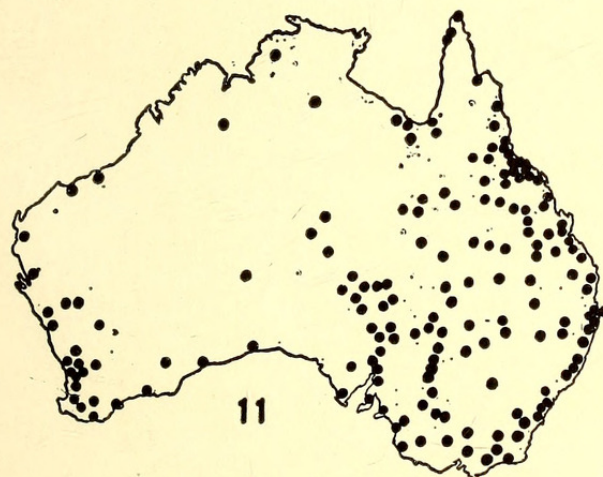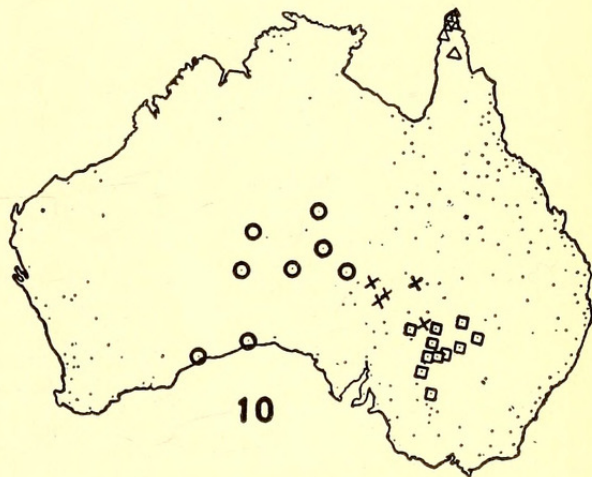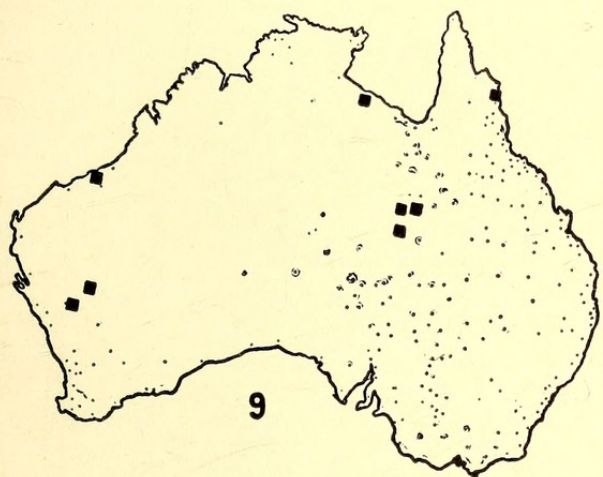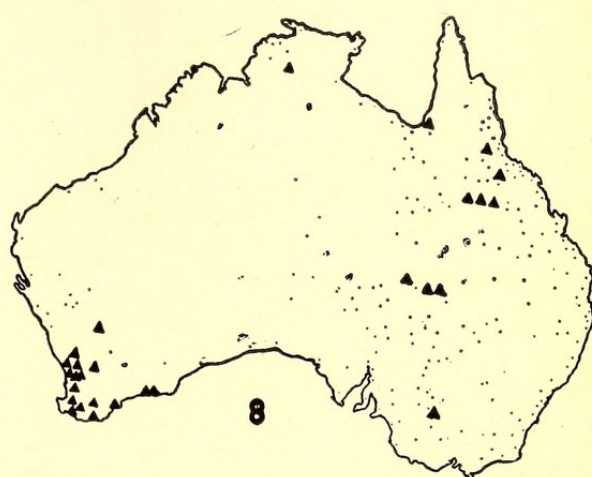
Teeth. Map 7, yira (circles).   Map 8, ngalko (triangles).   Map 9, milka (squares).   Map 10, nandi (hollow squares), karditi (hollow circles), nunathandra (crosses), abu (hollow triangles).

Tongue. Map 11, taling (circles).   Map. 12, mat (squares), pulpa (hollow circles), nabi (crosses), kaking (triangles), nandula (V's).
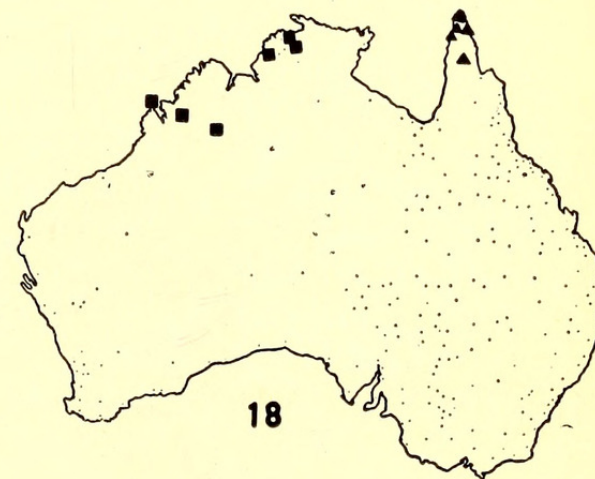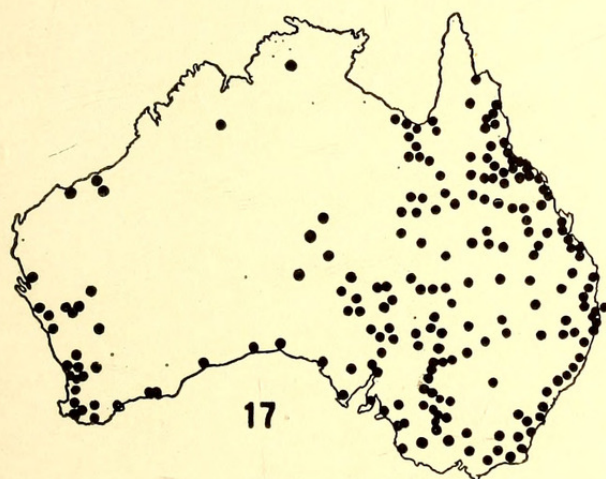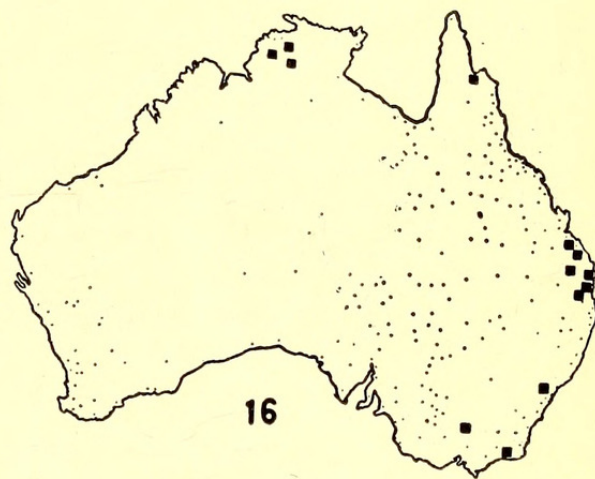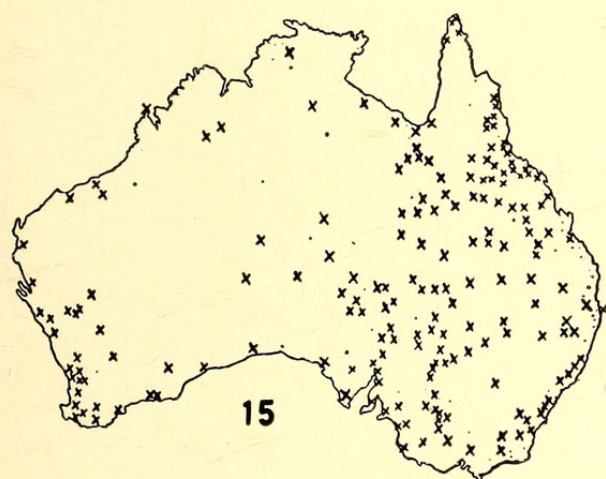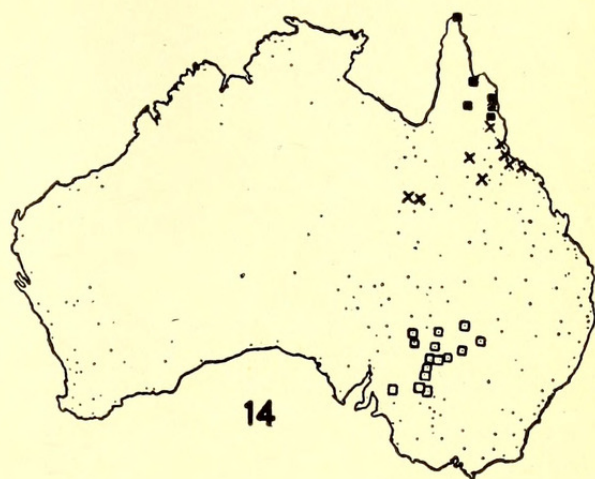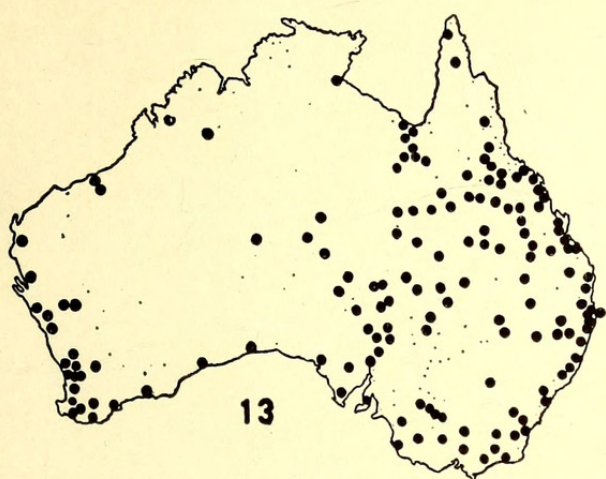
Beard. Map 13, nanka (circles).   Map 14, talba (crosses), wakalka (hollow squares), wata (squares).

Hand. Map 15, mara (crosses).   Map 16, biri (squares).

Foot. Map 17, tina (circles).   Map 18, bel (squares), kwa (triangles).

Plate V.
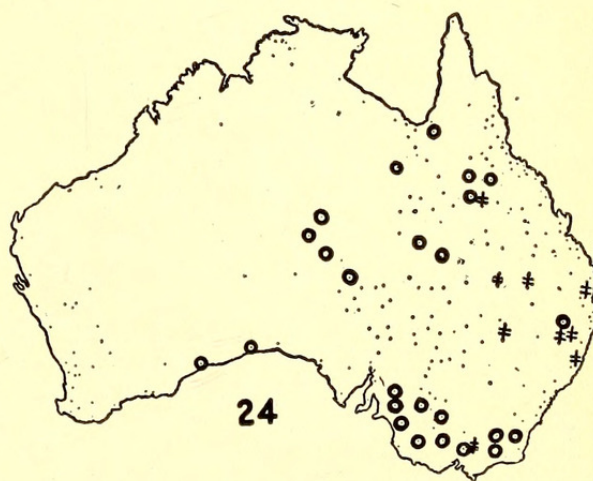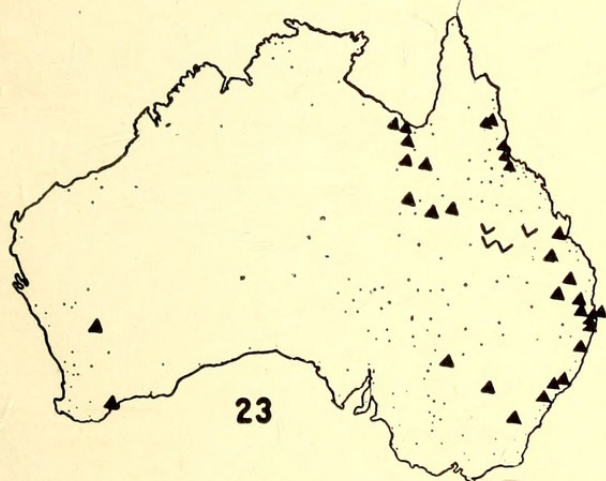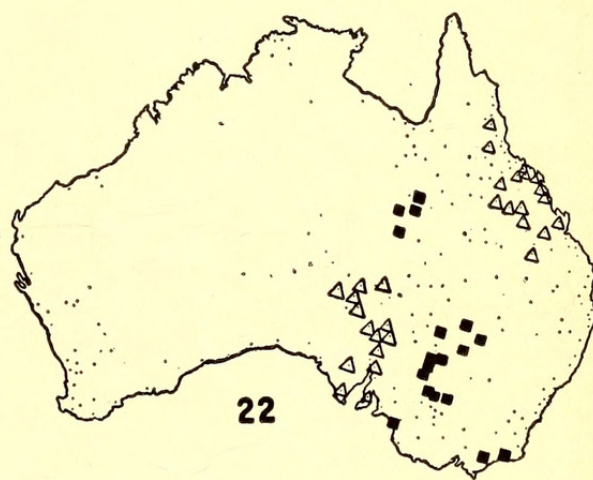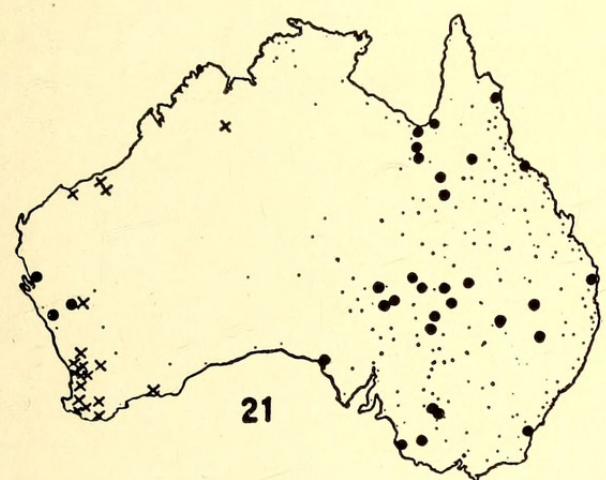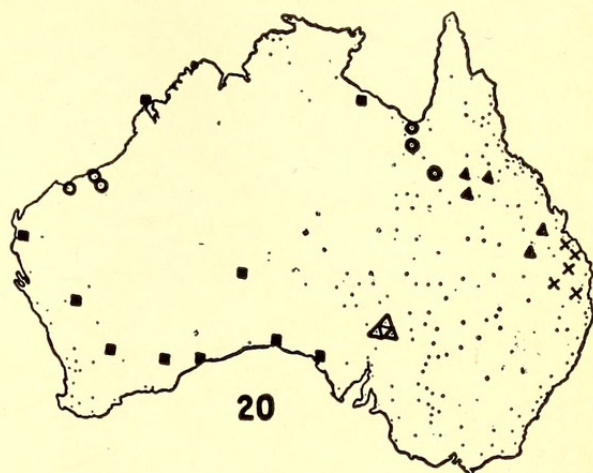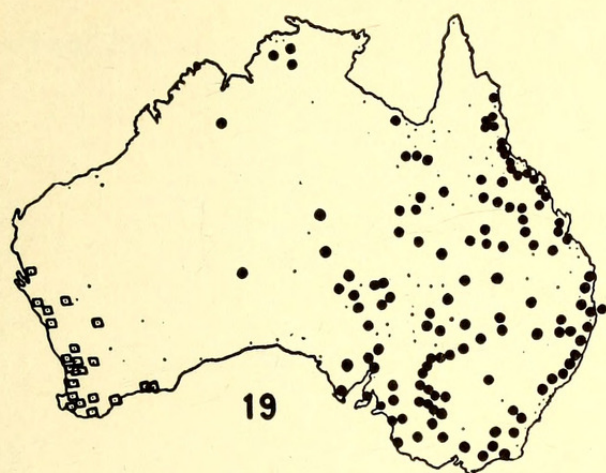
Blood. Map 19, kuna (circles), ngupa (hollow squares).   Map 20, yalga (squares), dil (crosses), ma (hollow circles), arti (hollow triangles), yer-kura (triangles).

Bone. Map 21, muku (circles), kwachi (crosses).   Map 22, walpu (hollow triangles), pirna (squares).   Map 23, direl (triangles), yarun (V's). Map 24, kungun (hollow circles), nim (double crosses).
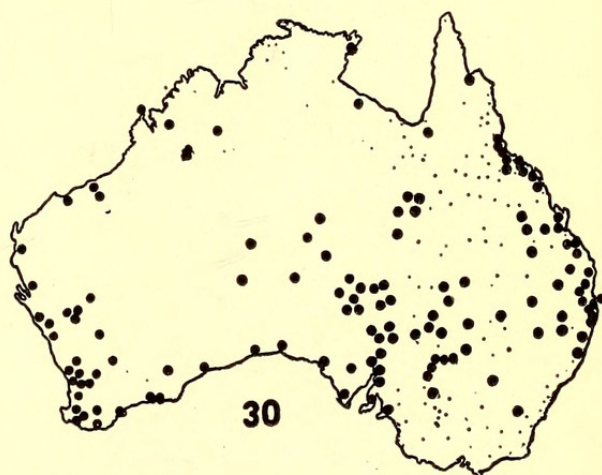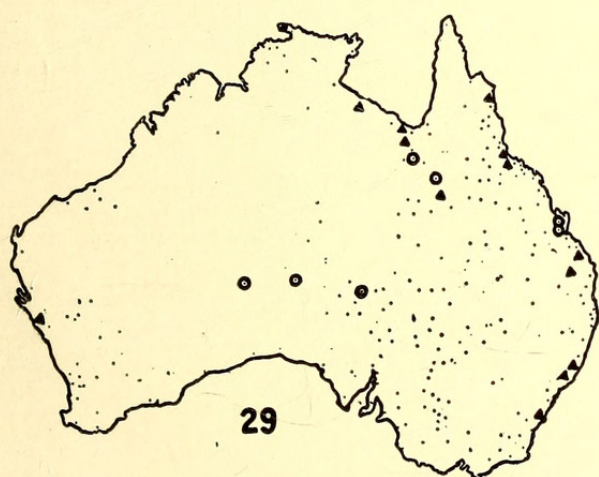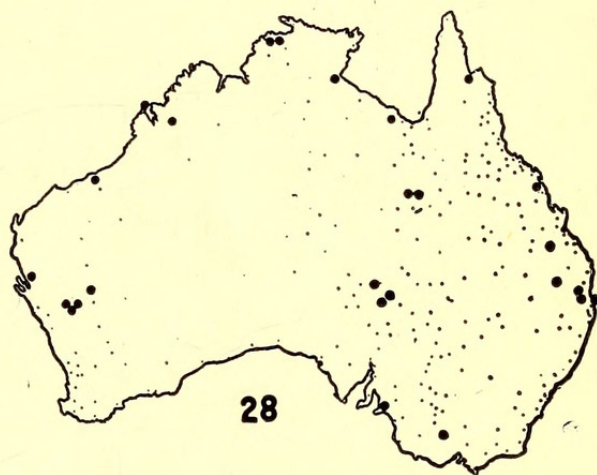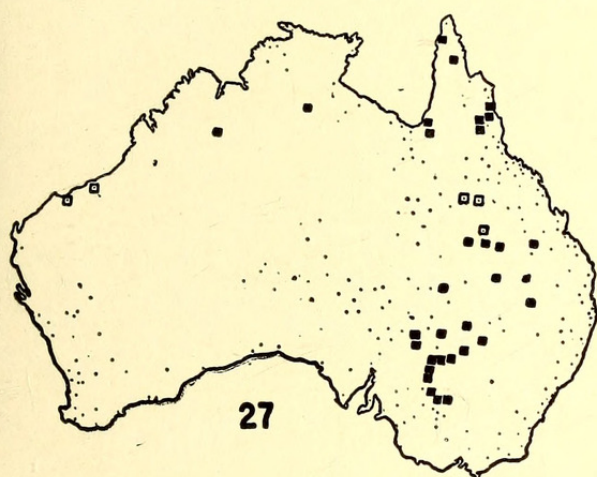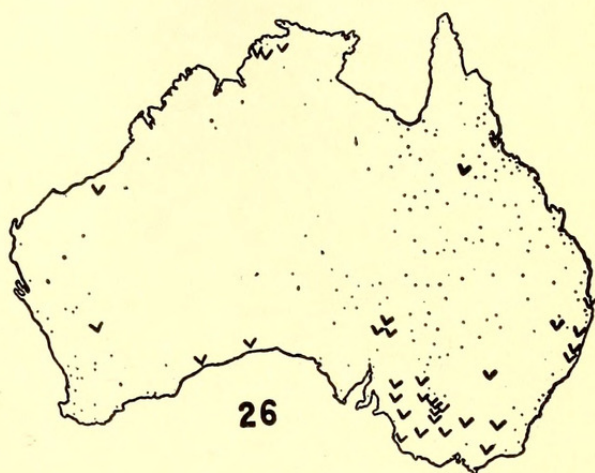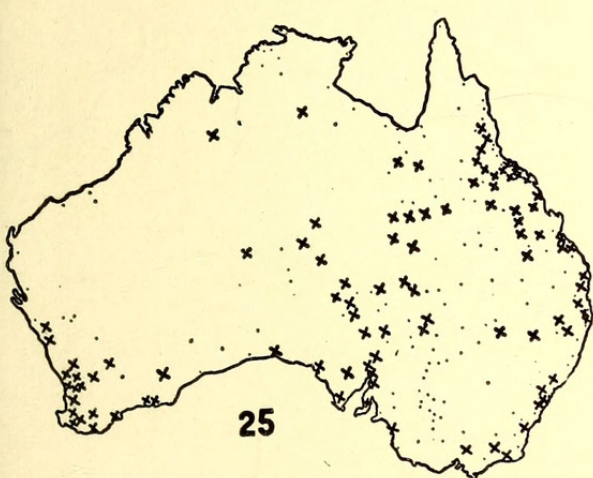
Head. Map 25, ka- (crosses).   Map 26, ba- (V's).   Map 27, ta- (squares), yulka (hollow squares).   Map 28, ma- (circles).   Map 29, wal (triangles), ngal (hollow circles).

Nose. Map 30, mula (circles).
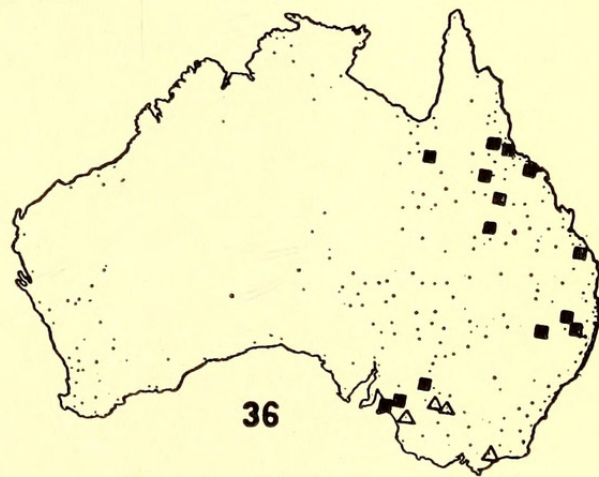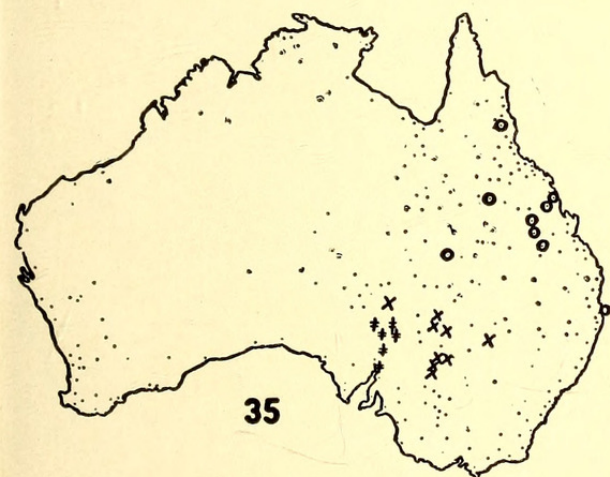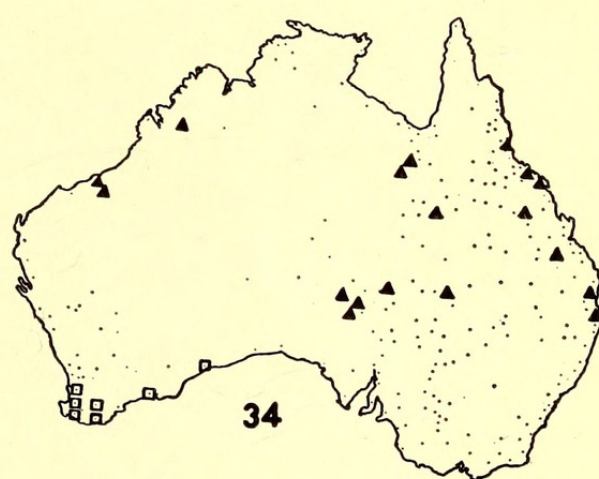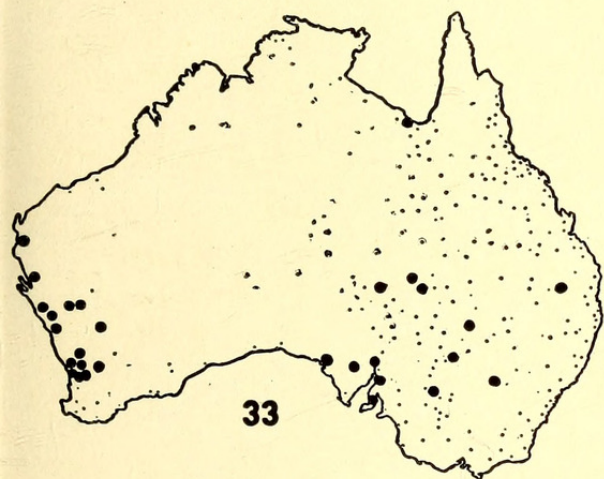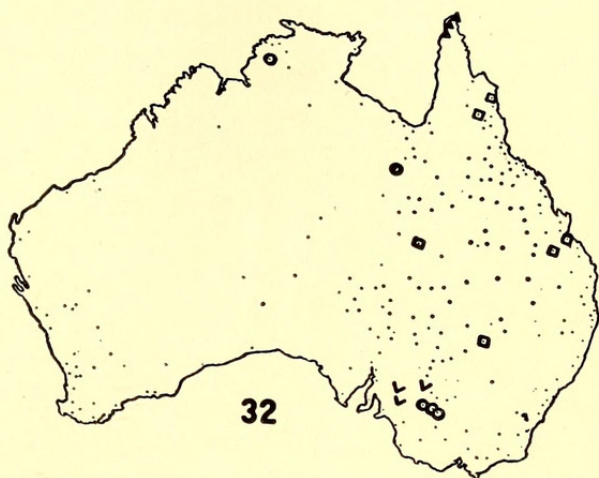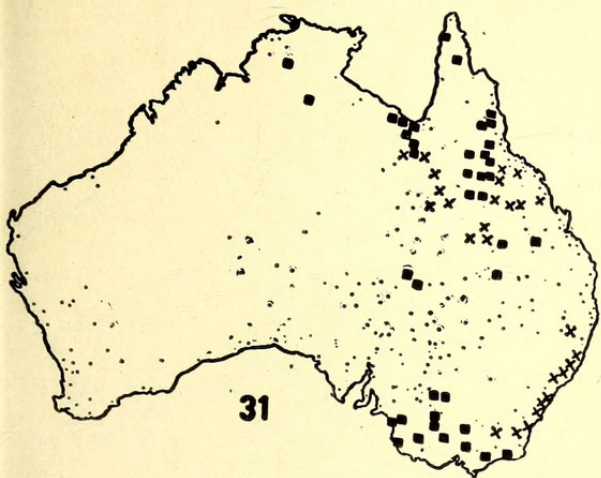
Nose (continued). Map 31, kang (squares), ningar (crosses). Map 32, djandji (hollow circles), runko (V's), pultu (hollow squares), eye (triangles).

Night. Map 33, malti (circles). Map 34, wanga (triangles), kitok (hollow squares). Map 35, tinka (crosses), wilcha (double crosses), kunda (hollow circles). Map 36, ngula (squares), porun (hollow triangles).
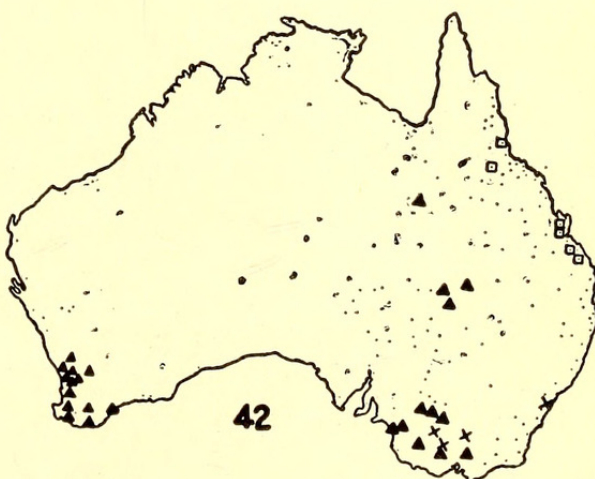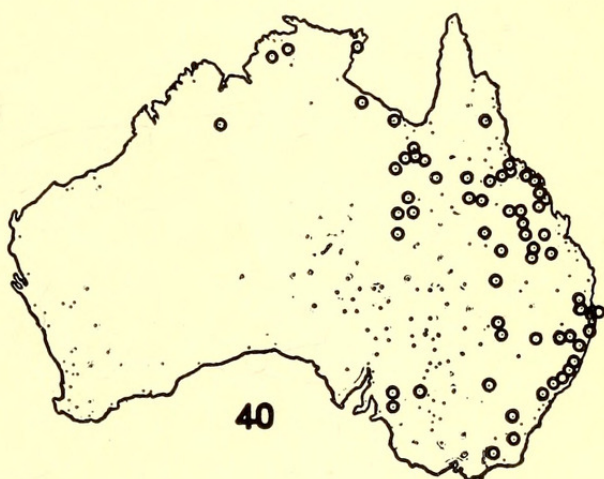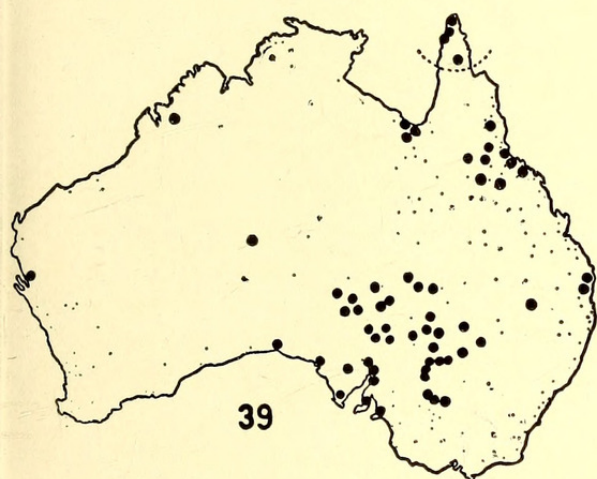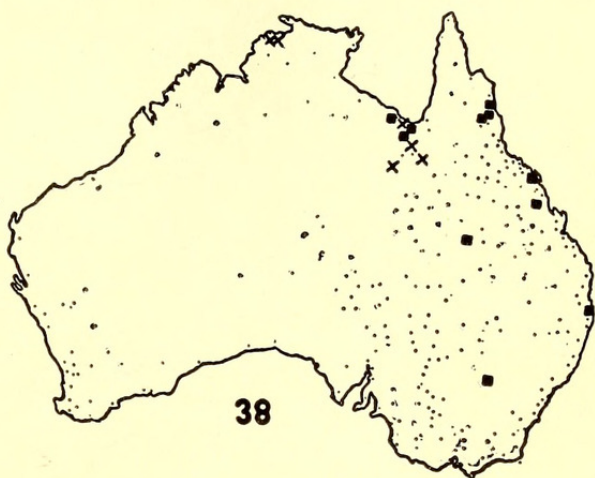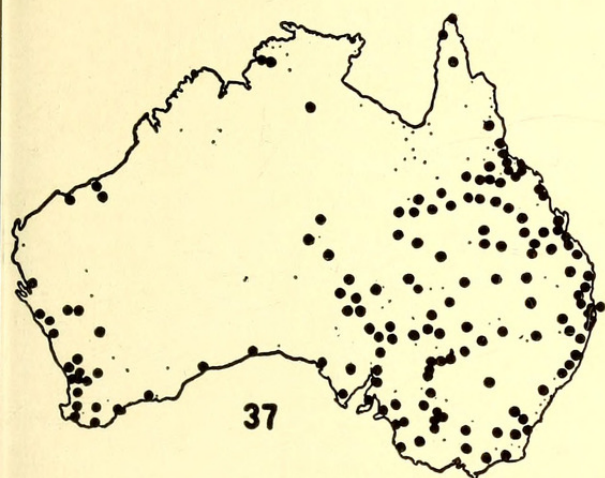
Excrement. Map 37, kuna (circles). Map 38, tala (squares), muna (crosses).

Moon. Map 39, pira (circles). Map 40, kibun (hollow circles). Map 41, wilara (V's), taranan (squares), yagin (double crosses), ankacha (double triangles). Map 42, mika (triangles), ngilan (hollow squares), yer (crosses).
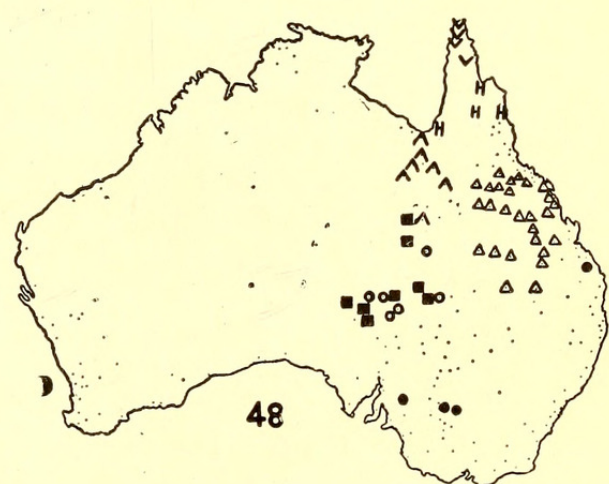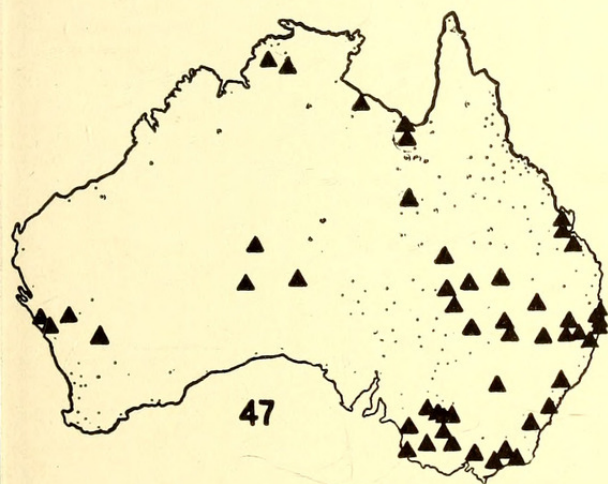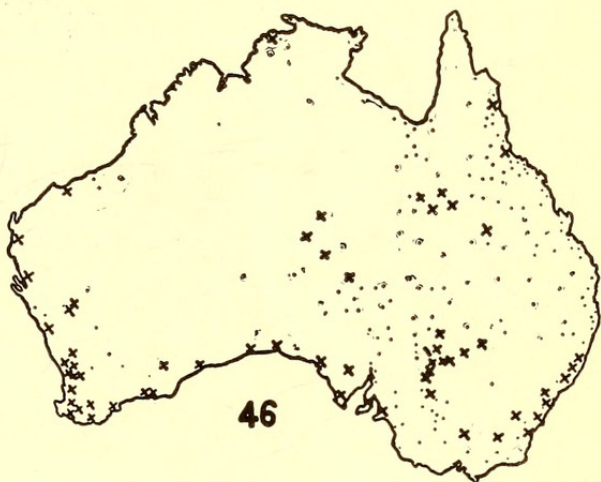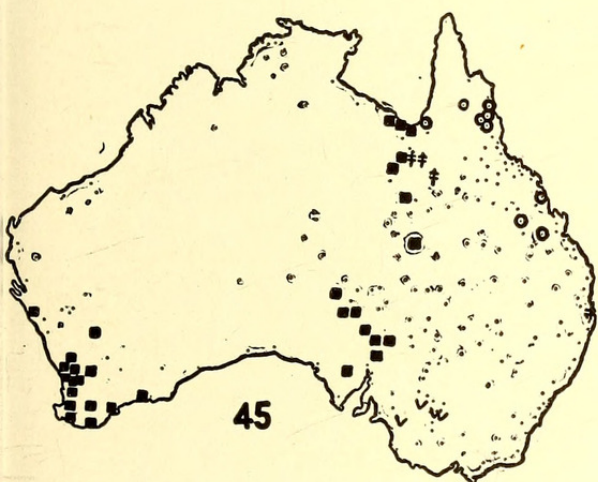
Person, blackman. Map 43, karu (circles).　Map 44, mari (triangles), wimbadja (hollow squares), dan (crosses).　Map 45, yuna (squares), bangil (double crosses), bama (hollow circles), wortongi (V's).

Fire. Map 46, kun- (crosses).　Map 47, wi (triangles).　Map 48, buri (hollow triangles), maka (squares), turu (hollow circles), ngun (circles), uma (H's), yanu (inverted V's), mo- (V's).

where a substantially true line of linguistic cleavage. Only, there is nothing to show that it ever indicates a primarily important cleavage as he has made it out to be. Still, coupled with his recognition of the distinctiveness of the Darling-Narrinyeri groups, and of a significant change of language at Streaky Bay (where Schmidt's South Central and South-western groups adjoin), Curr's Eastern-Central line shows him to have had a certain degree of linguistic feeling—even though his philological conclusions are mainly compounded from ethnological data, native myths, and pure speculation as to migrations.

Works Supplementary to Curr.

The following are the sources of dialects not compiled by Curr. The numbers refer to Fig. 3. No. 215, W. C. Stretton, Tr. Roy. Soc. S. Austr., xvii, p. 227. Nos. 216 – 220, 222, Elder Expedition, *ibid.* xvi, p. 317. No. 221, W. E. Roth, N. Queensland Ethnogr., Bull. 6, 1903. No. 223, Journ. Elder Exped., Adelaide, 1893. No. 224, R. H. Mathews, J. and Pr. Roy. Soc. N.S.W., xxxv, p. 217. No. 225, H. Kempe, Tr. Roy. Soc, S. Austr., xiv, p. 1. Nos. 226 – 228, T. C. Parkhouse, *ibid.* xix, p. 1. No. 229, R. H. Mathews, Queensland Geogr. Journ., xvi, p. 69. Nos. 230 – 231, Spencer and Gillen, Northern Tribes of C. Austr., 1904, p. 745. Nos. 232 – 233, 239, J. Mathew, Eaglehawk and Crow, 1899. No. 235 – 238, S. H. Ray, in Cambridge Exped. Torres Straits, iii, p. 281.