THE DRAINAGE PATTERN OF MYSORE STATE

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1. INTRODUCTION

The chief characteristic of the drainage of Peninsular India is the marked easterly trend of its main rivers; but Mysore State, though it forms part of the Peninsula, has certain noteworthy features in its river system. The rivers have their origin somewhere on a east to west line in the middle of the State, and flow either northwards or southwards. Before accounting for this peculiarity, it is necessary to give a brief sketch* of the main geological formations of Mysore and the way in which they have influenced the topography of the country.

2. THE ROCK FORMATIONS OF MYSORE AND THEIR CHARACTERISTIC TOPOGRAPHY

The rock formations of Mysore could be divided broadly into four main groups (vide Fig. 1). Starting with the oldest, they are—1. The Dharwar Schists; 2. The Gneisses; 3. The Charnockites; and 4. The Granites.

(i) The Dharwar Schists.

There are four prominent bands of these schists (A, B, C and D, in Fig. 1), and they may be designated as the Western Ghat Belt, the Shimoga Belt, the Chitaldrug Belt, and the Kolar Belt.

The most western of these belts is found in the highly mountainous regions of the Ghats in the Shimoga and Kadur Districts, and forms precipitous escarpments all along the frontier.

The Shimoga Belt forms the southern extension of the schists originally recognised by Bruce Foote near Dharwar in the Bombay Presidency. This is a fairly extensive band, confined mostly to the Shimoga and Kadur Districts, but discontinuous patches occur in the Hassan and Mysore Districts. It covers an area of nearly 3,000 square miles.

* For a more detailed account, the following paper by the writer may be referred to: "The Topography of Mysore and its Relation to the Geology of the State," Calcutta Geographical Review, 1941, 3, 81-91.
Fig. 1. Sketch map showing the disposition of the chief geological formations of Mysore State, and important elevations


Heavily inked areas indicate regions of over 3,600 feet in elevation. It will be noticed that almost all the important elevations of the State are situated either in the Dharwar Schists or in the Charnockites and Granites.

7. $\Delta$ 4,010 17. Jogimardi 27. $\Delta$ 3,745 37. Mulbagal
The Drainage Pattern of Mysore State

Fig. 2. Profiles along MN, OP, QR and ST in Fig. 1. MN, OP and QR are practically north to south, and ST is north-north-west to south-south-east.

The profiles have been drawn with very little displacement (the dotted lines represent latitudes 12° and 14°). Datum line, 1,800 feet above sea-level. Vertical scale, 1′′ = 4,000 feet.


The Chitaldrug Schist Belt is a well-defined band which runs continuously through the middle of the State in an approximately north and south direction. It has a maximum width of about 25 miles in the Chitaldrug District. It is very much narrowed as it passes through Tumkur District and the belt finally disappears near Seringapatam in the Mysore District, after splitting into several thin branches. It has a total length of about 170 miles, and covers an area of nearly 2,000 square miles.
The Kolar Schist Belt is a small band situated near the eastern end of the State. It runs due north and south for about 40 miles in the Kolar District. It is quite narrow, and its total area is only about 100 square miles.

Petrographically, the schist belts are composed of a great variety of rocks, but the chief types are chlorite schists, hornblende schists, limestones, quartzites, and ferruginous quartzites. Of these rocks, the quartzites and ferruginous quartzites are most resistant, limestones are less so, while the schists weather very easily. This unequal resistance of rocks to weathering is responsible for many of the characteristic features of Dharwar Schist topography. As a result of differential weathering, quartzites and especially ferruginous quartzites tend to form ridges, while the schists are worn down to form lowlands. Hogbacks are of frequent occurrence, these being composed of a central bed of hard rock flanked on the sides by softer rocks. If the topography of a schist area is examined, it will be seen that the ferruginous quartzites, and in a few cases the ordinary quartzites, form the backbone of many of the ranges of hills. The prolonged erosion which Mysore has experienced has served to emphasize these topographic features, and this explains why the Dharwar Schist region contains many of the biggest hill ranges and the highest peaks in the State. It is this feature which has contributed to no small extent, the direction of flow of many of the Mysore rivers.

The Shimoga Schist Belt affords very good examples of the effects of differential weathering on topography. The most conspicuous feature is the sickle-shaped Bababudan Hills in the Kadur District (vide Fig. 6). The longer diameter of this more or less ring-shaped range is about fourteen miles from east to west, and the shorter diameter from north to south is nearly 12 miles. The range varies in height from 4,000 feet to 6,000 feet, and contains some of the highest peaks in the Mysore State such as Mulaingiri (6,317 feet), Bababudangiri (6,214 feet), Kalhattigiri (6,155 feet), Rudragiri (5,692 feet), and Hebbegiri (4,385 feet). Geologically, the Bababudan ranges consist of several bands of ferruginous quartzites which rest on epidiorite flows. The outer edges are all steep escarpment slopes which have given rise to several waterfalls. The beds dip in a centrolinal manner into the Jagar valley which has been carved out of the comparatively softer schists and traps. This geological feature has given rise to a characteristic radial drainage pattern which will be described later.

In the western portion of this belt, there is a chain of hills composed of banded ferruginous quartzites, which runs in an almost due north and south direction and is nearly seventy miles in length. This commences from
Mertiparvata (5,451 feet), and extends beyond Shikarpur in the north, passing by Mandagadde, Shankargudda, and Kumsi in the Shimoga District.

There is another range of hills on the eastern border of this schist belt, formed of discontinuous bands of ferruginous quartzites and conglomerates. This extends from the north of Chikmagalur, and the ferruginous quartzite hills contain such high peaks as Dodbalasidderu (5,129 feet) and Akkantangiyyara Gudda (4,064 feet). The hills of Kaldurga and Jhandimatti further north are composed of conglomerates and are not very high being only about 3,000 feet. It may be mentioned here that these conglomerates are highly metamorphosed, and as the result of a certain amount of recrystallisation, the rock has become compacted and tough. The exposures of conglomerates are, therefore, bouldery, and have the characteristic appearance of granite outcrops. Many of the huge boulders stand out as prominent tors. The elevation of this chain of hills is reduced much more in the northern portion of the range, the ferruginous quartzite hillocks near Hoskere averaging only about 2,500 feet in height.

As in the Shimoga Belt, the Chitaldrug Schist Belt is also bordered on the west by an almost continuous range of hills formed of ferruginous quartzites. This chain is more than eighty miles in length. The average elevation, however, is much lower; for as will be seen from Fig. 1, there is no point over 3,600 feet in height except the Jogimardi hill (3,722 feet), which, however, is not formed of ferruginous quartzites but of intrusive traps. This long range of hills commences from the north of Jagalur in the Chitaldrug District, and passes south alongside Chitaldrug, Marikanave, and Chikkanayakanahalli, and almost disappears near Yelladbagi in the Tumkur District, though isolated hillocks formed of discontinuous outcrops of ferruginous quartzites occur in the southern portions of the Schist Belt in the Mysore District.

In eastern Mysore, the Kolar Schist Belt resembles the Shimoga and Chitaldrug Schist Belts in that it is bordered on the west by runs of banded ferruginous quartzites. This geological feature has resulted in the formation of prominent hills in the western portions of the Belt. Yerraconda (3,357 feet) is practically the highest point in this Schist Belt, and is formed of ferruginous quartzites.

Next to the ferruginous quartzites, the quartzites of the schist bands are the most resistant to erosion. These rocks also form the backbone of chains of hills. The range north of Lingadhalli, in the Kadur District, affords a good example. The Bababudan Hills are almost completely surrounded by a zone of low hills which are composed of quartzites. In several places
in the Chitaldrug Schist Belt, hills formed of quartzites are common, as for example, near Kondli and Dodguni. These quartzite hills, however, do not reach such high elevations as the hills of ferruginous quartzites.

Limestones do not ordinarily form ridges and peaks because of their tendency to be easily affected by weathering agents. But, in some parts of Mysore, as near Voblapur in the Tumkur District, hills formed of these rocks are found. Their preservation in hilly masses is probably due to their association with ferruginous quartzites.

In areas where hornblende schists and chlorite schists are developed, the country is generally low and gently undulating. The surfaces of these hillocks are usually smooth in strong contrast to the rugged nature of the quartzite and ferruginous quartzite hills.

(ii) The Gneisses.

The greater part of the State is covered by the gneisses. These are intrusive into the schists. The oldest recognisable types of these rocks, have been designated as the Champion Gneisses. These are highly crushed, and invariably occur closely associated with the Dharwar Schists. One of their distinguishing characteristics is the occurrence in them of blebs of opalescent quartz of blue, dark, grey or smoky brown colour.

The later Peninsular Gneisses comprise rocks of many different types and composition; in fact, the term has now come to be used for all varieties other than the Champion Gneisses. The Peninsular gneissic complex is the most extensive and widely distributed rock formation in the State.

The gneisses cover the greater part of Mysore, but a glance at Fig. 1 will show that the extensive region occupied by these rocks is generally devoid of long ranges or high peaks. The gneisses are foliated and jointed to a high degree, and so have been acted upon with great effect by the prolonged influence of weathering agents, with the result that the topography here is of the "old age," type. The country has been reduced into a huge peneplain with only occasional monadnocks. The few isolated hills which rise abruptly from the plains are formed of highly jointed gneisses, and often appear as if rectangular blocks have been arranged one on top of another. The hills near Tyakal and Kolar, and those near Chitaldrug illustrate this feature very well. The profiles of such hills have usually a much cut up and serrated outline.

(iii) The Charnockites.

Later than the gneisses and intruding into them, are the charnockites. They are not extensively developed in Mysore and occur only in the eastern
and western borders of the extreme south of the of the State (vide Fig. 1). The charnockites are granulitic rocks characterised by the presence of the mineral hypersthene; they vary in composition from acid to ultrabasic.

In the south and east of the Mysore State, most of the elevated regions are found in the later intrusives, such as the charnockites and granites (vide Fig. 1).

The charnockites constitute important hill ranges such as the Nilgiris, the Shervaroyas, and the Palnis, in Peninsular India. In Mysore, only small patches of these rocks occur in the southern frontiers. Biligiriranganabetta (4,195 feet) and the Rampur hills (5,091 feet) in the east, and the Pushpagiri hills (4,045 feet) in the west are situated in the charnockite area.

(iv) The Granites.

The most important occurrence of granite in Mysore is the prominent broad band known as Closepet granite. This traverses right across the State in a north-south direction, for a distance of nearly 200 miles (vide Fig. 1).

Apart from this, there are also several smaller patches of granite all over the State, but the chief occurrences of these are mainly confined to the east of the Closepet granite band.

The Closepet granite abounds in many high peaks of over 4,000 feet, such as Maddugiri (4,128 feet), Siddabetta (4,198 feet), Devarayanadurga (4,154 feet), Sivaganga (4,559 feet), and Savanadurga (4,024 feet). There are several hillocks of smaller elevation in the neighbourhood of Closepet and Kankanhalli. The hills of the Closepet range have a characteristically rounded shape, with very smooth steep sides. They are sometimes made up of just a few huge boulders. The rock is not highly jointed as in the case of the Peninsular gneisses, and this factor together with the younger age of granites, have helped to preserve outcrops of these rocks from being much denuded.

The Closepet granite is porphyritic, but some of the other intrusions are typically granitic. Good examples of the latter type can be seen in the Nandi Hills (4,851 feet), the well-known health resort north of Bangalore. Smooth-sided precipitous hills are common here as well, and in this respect they resemble the topography of the Closepet ranges. “Tippu’s Drop” in Nandi Hills is a stupendous example of one of these almost vertical precipices. These hills have also influenced to a great extent the direction of flow of some rivers of Mysore as can be seen by referring to the geological map of Mysore.
3. **Geological Structure and its Influence on Drainage**

The prolonged denudation that the Mysore State has been subjected to, has left only the remnants of the Dharwar Schists which, in all probability, were once much more extensive than they are now. The effect of weathering has been to emphasise the original irregularities in surface features, and many of the chains of hills are composed, as mentioned earlier, of hard rocks, while the comparatively softer rocks have been worn down.

The statement that with the exception of the Aravallis, the other mountains of the Peninsula are the result of circumdenudation, is only true in

![Map of Mysore State showing drainage pattern](image)

**Fig. 3.** Sketch map showing the drainage pattern of Mysore. The dotted line across the middle of the State represents the watershed running from east to west.

1. Sharavati  
2. Kumadvati  
3. Tunga  
4. Bhadra  
5. Haridra  
6. Vedavati  
7. Jayamangali  
8. Pennar  
9. Chitravati  
10. Papaghni  
11. Hemavati  
12. Yagachi  
13. Cauveri  
14. Kapini  
15. Lokapavani  
16. Shimsha  
17. Kanza  
18. Arkavati  
19. Ponnaiyar  
20. Palar
very general terms. For, if one examines in detail the geological structure of some of the mountain ranges of Mysore like the Kuduremukha and the Bababudans, evidence of complicated tectonics is afforded by the intense folding and faulting which the rock formations constituting these hills have undergone.

The trend of the hill ranges in the Mysore State roughly corresponds to the trend of the Schist Belts. This is because of the fact which the writer has already pointed out, that the hills in the schist area are formed mostly of ferruginous quartzites. These rocks which form a characteristic and important member of the schist belts, conform in a remarkable manner, to the strike of the other components of the Dharwar Schists. Herein lies an important reason for the characteristic distribution of the rivers of Mysore. A striking illustration of this is afforded by the tributaries of the river Tunga near Koppa (vide Fig. 5). These streams flow from south to north preferentially over gneissic country, the direction of their course being determined by the north to south disposition of the Dharwar Schists.

The general trend of the hills in the western part of the State is northwest to south-east. There are however, two conspicuous exceptions to this general direction. One of these exceptions is the range of hills extending in a roughly south to north direction from Ballalrayandurga to Shankargudda near Shimoga. This seems to form the eastern limb of a huge synclinal fold, the other limb being found in the Kodashadri-Kuduremukha range. In this way, the Western Ghats Schist Belt and the Shimoga Schist Belt are connected together as already mentioned. This north-south trend of this arm has influenced the direction of flow of the southern tributaries of the Tunga between Koppa and Narasimharajapura.

The other exception is the almost circular range of the Bababudan Hills in the Shimoga Schist Belt. Here, the strike of the rocks is north to south in the eastern portion between Bababudangiri and Kemmangandi, while it is almost due west to east both in the northern portion of this range between Hebbedgi and Kemmangandi, and in the south near Rudragiri and Mulian-giri. The opening at the west of this horse-shoe shaped range is partially closed, and the Gangagiri branch tapers out towards the south in a chain of hills which runs almost parallel to the Koppa-Kalasa portion of the range which, as mentioned earlier, is the right limb of a huge synclinal fold. The crater-like centre within the Bababudan ring of hills is known as the Jagar valley and the drainage here is somewhat radial (vide Fig. 6). The Somavahini enters the valley through a gorge probably along a fault plane between Malandur and Mututode; its tributaries drain the Jagar valley and flow in
an east to west direction, while their subsidiary feeders flow inwards in a radial manner from the circumjacent elevated regions.

In the central Chitaldrug Schist Belt, the low hill ranges trend fairly consistently in a direction slightly west of north. But, to the south of Chitaldrug town, geological structure has considerably modified this general trend of the hills. The curved and almost parallel hill ranges, one extending from Mahadevankatte to the hill 3,656 about two miles east of Handiganadu, and the other range a little further south stretching from Banjagondanahalli to Kurubaramaradikere, afford a good illustration of a folded region. The main rock formations composing these hills are ferruginous quartzites and the beds have been folded into a broad syncline. The fold pitches towards the north, and hence the limbs meet south of Chitaldrug town. Therefore,

Fig. 4. Sketch map of South India showing the characteristic distribution of the rivers of Mysore State (the area within dotted lines) in relation to that of the Peninsula.

While the rivers of the Peninsula flow generally in a west to east direction, the rivers of Mysore flow North or South


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the hills here are disposed in an east to west direction which is almost at right angles to the general trend of the schist belt. The U-shaped appearance of these ranges is clearly seen from the topographic map of Chitaldrup and its environs (1" Sheet 57 B/8). The stream courses are correspondingly curved.

The generally long and straight ridges which are common in some regions in the schist belts, are due to folds which are not plunging. In many parts of Mysore, closely pressed isoclinal folds have been deeply eroded and this has resulted in well-defined parallel ridges and valleys, a type of structure to which the name “corduroy” has sometimes been applied. This gives rise locally to a characteristic pattern of the drainage system.

It is a matter of common knowledge that anticlinal structures are weak and therefore are liable to be eroded, while synclinal arrangements are relatively strong and hence are more persistent. Examples of such anticlinal valleys and synclinal hills are not uncommon in Mysore. In the Western Ghats Schist Belt, Kuduremukha (6,215 feet), is one of the highest peaks in the Mysore State. While it may be that its height is partly due to the uplift of the Western Ghats, the writer is of the opinion that its geological structure has had its undoubted influence. The geology of this rather inaccessible and difficult country has been described by the late Prof. P. Sampat Iyengar,* and his mapping of this area shows the existence of a synclinal fold. Kuduremukha is composed of hornblende schist, a rock which is comparatively easily weathered, but this peak is situated in the axis of a tightly folded syncline and hence has withstood for ages the denuding action of epigene agents.

4. THE RIVERS OF MYSORE

As has already been mentioned, the drainage system of Peninsular India is characterised by the marked easterly trend of its main rivers (vide Fig. 4). In the words of Medlicott and Blandford, “the only large streams running westward drain the northern portion of the Peninsula, and except in a narrow strip of country close to the Western or Malabar Coast, all the drainage south of the Tapti valley even from the summits of the hills within sight of the western sea, runs eastward to the Bay of Bengal.” The water-shed is the Western Ghats, which runs almost north-north-west to south-south-east. In Mysore, however, the water-shed is not parallel to the Western Ghats and situated at the extreme western portion of the State but is a line running across the middle of the State almost due west to east.

* The Geology of Kuduremukha and Gangamula regions, Kadur District, Rees. Mys. Geol. Dept., 1912, 12, Part II, 45-70; Plate III.
and dividing Mysore into two nearly equal halves. The rivers take their origin near this middle line and flow either northwards or southwards.

Fig. 3 is a sketch map of Mysore showing the principal streams, and the water-shed is indicated by the interrupted line. In this figure the small meanders of the streams have been straightened to bring out in a clear manner the main direction in which they flow.

(i) The North and South flowing Rivers.

The rivers in the west flow almost parallel to the general trend of the Western Ghats. The Sharavati runs north–north-west and is exceptional in that it joins the Arabian Sea after the magnificent falls at Gersoppa on the borders of the State. The Hemavati flows south–south-west for over twenty-five miles till it meets the border of the State. The river Tunga though it flows north-east, has, to start with, a stretch of about twenty miles where the course is north–north-west. The Bhadra also flows in this direction from Mudgere to Balchonnur, a distance of more than twenty miles. Again, the river Yagachi has this pronounced south–south-eastward direction. All the streams described above lie between the Western Ghats Schist Belt and the Shimoga Schist Belt.

The next important stream as we pass eastward is the Bhadra. This has a practically northerly trend and this course is conditioned by the Bababudan-Tarikere–Channagiri band of Dharwar Schists. To commence with, it breaks thrice through the southern extension of the Bababudan ferruginous quartzites and then flows northwards alongside the schist belt; it is then deflected eastward by the Shimoga granites but the northerly direction is again restored by the compact conglomerates and ferruginous quartzites, and it flows through Bhadrawati in a due northerly direction till it joins the river Tunga.

Let us now consider the streams between the Shimoga and Chitaldrug Schist Belts. While the Shimoga Belt is discontinuous and gradually disappears in southern Mysore breaking up first into numerous patches and shreds, the Chitaldrug Belt is a well-marked band 170 miles long, and traversing north and south right across the middle of the State. This has had a very great influence on the course of rivers. In the northern half, no river, except the Vedavati, cuts across this belt. Rather, this has constituted a subsidiary water parting and numerous small streams originate on this and flow both to the west and to the east. Those on the west flow into the Tungabhadra and those on the east into the Vedavati. The northern
tributaries of the Vedavati on the west of the Chitaldrug Schist Belt, have the characteristic south–south-east direction while the southern ones have a north–north-west direction.

In the southern half of this zone, the Lokapavani, a tributary of the Cauveri which joins it near Seringapatam, has its due north to south course conditioned by the southern extension of the Chitaldrug Schist Belt.

The next important rock formation east of the Chitaldrug Schist Belt, is the Closepet granite belt which runs right across the State in a north to south direction. This has also had a great influence on the course of the streams. The Vedavati which has cut across the Chitaldrug Schist Belt in a roughly west to east direction, is now deflected to the north. All the southern tributaries of the Vedavati in the area flow due north. In the southern part of the State, the Shimsha and Kana practically flow southwards.

To the east of this granite belt, nearly every one of the streams flows either due north or south. Among those which flow northward may be mentioned the Jayamangali, Pennar, Chitravati and Papaghati, and those which flow southwards are the Arkavati, Ponnaiyar and Palar.

(ii) The North-East and South-East flowing Rivers.

From the above description, it will be seen that the rivers of the Mysore State have a north-west and south-east direction in the west of the State, which changes gradually into a north–north-west and south–south-east direction in the middle, and finally becomes due north and south in the east. This corresponds very closely to the north–north-west to south–south-east trend of the rocks in the west, and the north to south trend in the east. There are however a few important exceptions to this general direction. These are the Vedavati and the Cauvery, and to a certain extent the Tunga and the Bhadra. These rivers flow transversely to the strike of the rock formations and consequently in many places hurl themselves over waterfalls as in Sivasamudram, or pass through magnificent gorges such as Marikanave.

In the case of the river Tunga, it starts in a north-easterly direction until the schist belt near Koppa deflects it into the characteristic south–south-east and north–north-west direction. It veers again eastwards before reaching Tirthahalli and cuts across the schist belt till it reaches Mandagadde, then it runs north-east across granite country till it joins the river Bhadra, after which the course is practically due north.

The river Vedavati, however, has a pronounced north-easterly course. This has its origin on the eastern side of the Bababudan hills in the Shimoga
Schist Belt. It is embanked at a gorge near Sakunagiri and forms a beautiful lake surrounded by high hills. After passing Sakrepatna, it has a uniform north-easterly course as it flows over gneissic country. Then it enters the Chitaldrug Schist Belt and passes through several gorges as it cuts across the strike of ferruginous quartzites. It is while passing through one such narrow gorge in the ferruginous quartzites at Marikanive, that the stream has been dammed to form the irrigation reservoir, Vani Vilas Sagara. After emerging from the schist area, the river enters gneissic country and then assumes a northerly trend, this deflection being due to its coming against the elevated regions of the Closepet granite.

Let us now trace briefly the course of the Cauveri, the principal river of the Mysore State. This practically never comes across any prominent band of schists, and as it flows almost entirely over gneissic country, it has a

![Fig. 5. Sketch map showing a few of the southern tributaries of the river Tunga near Koppa. The directions of flow of these streams have been determined in a remarkable manner by the north to south disposition of the Dharwar Schists](image-url)
fairly uniform east-south-easterly direction. It commences flowing eastwards through Coorg as far as Siddapur, and then turns north and enters Mysore near Fraserpet, from where as far as Konur it flows north, most of its course being along the boundary between Coorg and Mysore. At Konur it turns to the south-east, which direction it generally maintains right across the State. Early in its course in the State, near the anicut of Saligrama, it runs through a deep narrow gorge and near Chunchanakatte the river falls from 60 to 80 feet in a succession of cascades. When it touches the eastern border of the State, the river turns northwards till it reaches Sivasamudram where it splits into two branches which hurl themselves over two picturesque falls, the Gangana Chukki and the Bar Chukki. They unite again and flow eastward crossing the Closepet Granite Belt through a wild gorge which sometimes is quite narrow as in Mekedat. It is a significant fact that the Cauveri has been dammed by no less than twelve anicuts in the Mysore State.

5. The Main Water-Shed of Mysore State

In considering the drainage system of Mysore there are two features which require to be explained:—

(i) the prevalent northward and southward direction of most of the important streams; and

(ii) the north-eastward and south-eastward direction of flow of such rivers as the Tunga, Bhadra, Vedavati and Cauveri.

Now, the former feature is due to the fact that Mysore is not a flat plateau as it is commonly believed to be; it is domed up in the middle, the axial line of this elevated portion running west to east right across the State and forming the main water-shed. To visualise this, the elevations from north to south in four different zones across the State have been plotted in Fig. 2, care being taken to select as far as possible places which lie almost entirely in the Peninsular gneiss. This has been done because the gneisses are fairly homogeneous and so give a clue to the ancient configuration of the country, while the schist areas being composed of rocks of varying hardness show the results of differential weathering.

Fig. 2 shows clearly that the north and the south of the Mysore State lie at an elevation of only about 2,000 feet whereas the central zone on which are situated towns like Mudgere, Belur, Chikmagalur, Hassan, Halebid, Tiptur, Kunigal, Bangalore, Devanahalli, Nelamangala and Chintamani, has an average elevation of about 2,750 feet while at many spots the elevation is well over 3,000 feet. The southern limit of this low ground is the
valley of the river Kapini, for further south the land rises again. It is again significant that the tributaries of Kapini have the characteristic direction of flow, *i.e.*, the northern tributaries from north to south and the southern tributaries from south to north.

The central water-shed is such a well marked elevated region that it most probably constituted a range of hills in the early history of the Peninsula. The east-west trend of this prominent ridge corresponds to the major East-West trend of some of the prominent ranges of India such as the Vindhyas and Satpuras.

![Sketch map showing the radial drainage pattern of the Bababudan Hills](image)

**Fig. 6.** Sketch map showing the radial drainage pattern of the Bababudan Hills

1. Hebbegiri (4,376)  
2. Trishula (4,727)  
3. Kemmangandi  
4. Kalhattigiri (6,151)  
5. Bababudangiri (6,207)  
6. Mulaingiri (6,310)  
7. Rudragiri (5,685)

6. **The Uplift of the Western Ghats and its Effect on the Drainage of Mysore**

There remains next, the question of the north-easterly and south-easterly direction of some rivers. From the foregoing pages it will be seen that the slope of the ground as well as the geological formations of the schist country were responsible for the pronounced initial north and south
directions of the streams. Then the Western Ghats region was elevated. The writer considers that this elevation gave a general regional tilt to the Mysore State from west to east, and that this naturally resulted in a disturbance of the stream directions. Many streams had already carved out their valleys and since their directions of flow were conditioned by ridges of hard rocks, they did not change their courses appreciably. However, because of the uplift of the Western Ghats region, some of the rivers took the resultant direction, which is north-eastwards in the northern half of the State, and south-eastwards in the southern half of the State (vide Fig. 3). Rivers like the Tunga, Bhadra and Vedavati flow in a north-easterly direction while the Cauveri flows in a south-easterly direction. This change in their courses involved breaking through obstructions presented by hard rocks, and that affords an explanation for the fact that these rivers abound in cascades and waterfalls, and frequently pass through narrow gorges.

It is very significant that in the case of these rivers, the course is not straight but characteristically zig-zag, the rivers flowing for some distance parallel to the trend of the rock formations, and then for some distance across their strike. The Tunga and Bhadra both illustrate this, for they flow north-westwards for some miles near their origin, and then deviate to the north-east, the north-westerly direction being resumed by the Tunga before it leaves the borders of the Mysore State, and by the Bhadra before it joins the Tunga.

7. CONCLUSION

In this paper, the writer suggests an explanation for the drainage pattern of Mysore State which is very different from that of Peninsular India. While the rivers of the Peninsula flow generally in an easterly direction, the rivers of Mysore State flow north and south, taking their origin from an east-west region right across the middle of the State and which forms the main water-shed.

A brief account is given of the chief rock formations and geological structures to indicate their relation to topography. The conclusion is arrived at that the directions of flow of the rivers of Mysore have a definite bearing to the trend of rocks of the Dharwar Schists, and to the disposition of the chief granite areas, and that the later uplift of the Western Ghats has caused some of the rivers to flow in north-easterly and south-easterly directions.