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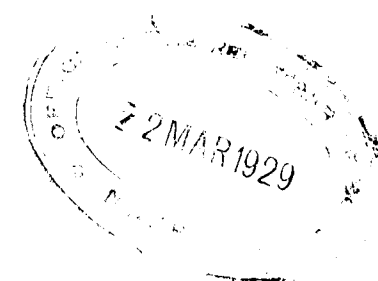
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The Lingayats

THE Lingayats are a religious community consisting of various castes held together by the bond of their common religion. They are also known as Lingawants, Lingāngis, Lingadhāris, Sivabhaktās and Viraśaivās. The members of the community prefer to be called Viraśaivās. They derive their name from the Sanskrit *linga* the phallic emblem with the affix *ayta*. In fact the name literally describes them, for the true Lingāyat wears on his body, a silver box containing a stone phallus which is the symbol of his faith, and the loss of it is tantamount to spiritual faith. This emblem is worn by both the sexes. It is said that the sect seems to have been founded in the twelfth century, and that it soon attained considerable proportions, spreading rapidly to the South chiefly in the Kanarese country. The Lingayats, on the contrary affirm that the sect is extremely old, and that it was recognized in the twelfth century. 'In the Carnatic,' for centuries, says Farquhar, 'the mass of the people had been either Jains, Digambers or Śivas, and the new sect seems to be essentially a fresh formation meant to give the Śivas, a more definite theology to win over the Jains to the Śaiva worship.'¹

Origin and History of the Community

Regarding the origin and tradition of the Lingāyats, Mr. Karibasava Sastri, Professor of Sanskrit and Kanarese Literature in the Maharaja's Sanskrit College in Mysore contends, that the Siva sect of the Hindus has been from time out of memory, divided into two groups, the one comprising the wearers of the *linga*, and the other who do not wear it. The former are called Viraśaivās, consisting of Brāhman, Kshatriya, Vaiśya and Sūdra, the four-fold caste division of Manu. Quoting from the seventeenth chapter of *Parameśvara āgama*, he declares that Viraśaiva Brāhman are known as Suddha Viraśaivās, Viraśaivā kings as Kshatriyas, Margaviraśaivas, as Viraśaiva Vaisyās or Misraviraśaivas, and the Sūdras of the community as Anteve Viraśaivas. In his opinion the duties enjoined and the penances imposed on

¹ J. N. Farquhar. *Outlines of Religious Literature*, p. 259.



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the first three classes are 1. *ashtavarna*, 2. penances and bodily emaciation and 3. the adoration of Śiva without sacrifice, all of which will be described in my account of the religion of the community. He further asserts that the Hindu *āśramas* or condition of life of *Brahmachāri*, *grahasta*, and *sanyāsi*, student, bachelor and ascetic are binding on Virasaivās, and quotes various Sanskrit texts in support of his views. The summary of his views is completely typical of the claim advanced by the Lingāyat community to be included within the fold of orthodox Hinduism, with the mistaken idea of thereby improving their social status. Further the four-fold divisions of caste scheme which are applicable to the Hindus are not applicable to the Lingāyats, who profess a non-caste religion.

The movement in favour of a special form of Śiva worship was commonly supposed to have been set on foot by the great Lingāyat saint Basava in the latter half of the 12th century. The acts and doctrines of Basava and of his nephew are described in two puranas, named after them, the *Basavapurana* and (Poona Edition 1905) and the *Channabasavapurana* (Mangalore Edition 1851). The former describes Basava as the son of Brahman parents, Madirāja and Madalāmbika, residents of Bāgavadi, usually held to be the town of that name in the Bijapur district of the Bombay Presidency. Basava is the Kanarese name for bull, an animal sacred to Śiva. Thus a connection is traced between Basava and the God Śiva. It is said that at the age of eight, Basava refused to be invested with the sacred thread of the twice-born caste to which he belonged by birth, and declared himself a devotee of Śiva, and said that he had come to destroy the distinctions of caste. His knowledge of the Śaiva scriptures attracted the attention of his uncle Baladeva, then prime-minister to the king of Kalyan, Bijjala. Baladeva gave his daughter, Gangādevi in marriage. Bijjala was a Kshatriya by race who usurped the Chalukyan kingdom of Kalyana in the middle of the twelfth century, installed Basava as his prime minister, and gave him his younger sister Nilalōchana to wife. The Puranas further recount the birth of Channabasava from Basava's unmarried sister Nagalāmbika by the working of the spirit of the God Śiva. The myth in connection with this miraculous conception is interesting. Basava while engaged in prayer, saw an ant emerge from the ground with a small seed in its mouth. He took the seed to his home, where his sister swallowed it, and became pregnant. The issue of this unique conception was Channabasava. Uncle and nephew both preached the new doctrines, and in so doing encountered the hostility of the Jains, whom they ruthlessly persecuted. A revolution, the outcome of these religious factions led to the assassination of the king Bijjala and the flight of Basava and his nephew. Basava is said to have been finally absorbed into the linga at Kudal Sangameswar, and Channabasava to have lost his life at Ulvi in North Kanara, a district in the Bombay Presidency. An annual pilgrimage of the Lingayats to the shrine of the latter takes place even to this day.

In this connection it is interesting to note the two important inscriptions relating to the origin of the Lingayats. The first was discovered at the village of Managoli, a few miles from Bagavadi, the traditional birth place of Basava. This record as many others, shows that king Bijjala gained the kingdom of Kaliyan in A.D. 1156. It

states that a certain Basava was the builder of the temple in which the inscription was first put, and that Madija was *mahāprabhu* or head of the village, when the grants in aid of the temple were made. Basava was further described as the grandson of Revadasa, and son of Chandirāja and as a man of great sanctity and virtue. The second inscription was found at Āblur in the Dharwar district of the Bombay Presidency, and belongs to about A.D. 1200. It relates to the fortress of a certain Ekānde-Rāmayya an ardent worshipper of the God Śiva. Rāmayya came into conflict with the Jains, and defeated them, both in dispute, and as the inscription says by performing miracles which consisted in cutting off his own head, and having it restored to him safe and sound by the grace of Śiva seven days later. All this came to the notice of king Bijjala who summoned Rāmayya into his presence. Rāmayya making his cause good before the king, won his support, and was presented with gifts of lands for the temple founded by him at Āblur in the new faith. The incidents related of Rāmayya are placed shortly before A.D. 1162, so that he would have been a contemporary of Basava. No mention of the latter or of the nephew is found in the record.¹

Relying on the inscriptions above referred to, it might be concluded that both Basava and Ekāntada-Rāmayya were reformers who had much to do with the rise of the Lingayat doctrine, and that the event must be set down to the twelfth century. But the Lingayat scholars of the present day claim a far earlier date for the origin of their faith. However their contention that its origin is contemporaneous with that of Brahmanic Hinduism has yet to be established by adequate evidence. Mr. Fleet, on the other hand, says, that the present Lingayat sect is more or less a development of a guild of the 500 Swāmis of Aihole, a village in the Bijapur district, who are the protectors of the Vira-Bananju (Vira Banajiga ?) religion, and who were always more or less strictly Śaivas, and free-minded. The sect however, in which the 500 Swamis of Aihole joined seems certainly to have organized with Ekāntada-Rāmayya at Ablur. The prevalent tradition of the present day, that Basava was the originator of it and founder of the community, must only be attributed to his having quickly become acquainted with the new movement of Śaivism started by Rāmayya, and to his having taken a leading part in encouraging and propagating it in circumstances which rendered him more conspicuous than the real founder. It is also likely, that, when the first literary account of the rise of Lingāyatism came to be written after the event, his name had survived to the exclusion of Rāmayya. The writer of the account made no reference to the part played by Rāmayya in the movement, but attributed the whole movement entirely to Basava to whom as an assistant, his nephew Channabasava was assigned. The latter is perhaps a mythical person.²

It must also be admitted, that the early history of the movement may be capable of further elucidation, and that the present day claims, though lacking the support of historical evidence have this much to rely on, that it is essentially probable, that the Dravidian races of South Indian whose primitive deities were absorbed by the Aryan invaders into the personality of God Śiva, always leant

¹ Hastings, E. R. E. Vol. VIII. p. 71.

² Ibid., p. 71.

towards the special worship of Śiva to the exclusion of the other members of the Brāhmanic triad and combined with this preference, a dislike of Brāhmanic ritual and caste ascendancy which is the real substratum of the movement ending in the recognition of Lingayatism.

Habitat

The Lingayats are found all over the Mysore State and the districts of Mysore, Chittaldurg and Tumkur return large numbers. Beyond the limits of the State, they are numerous in the districts of Belgaum, Dharwar and in Kolhapur as also in the Native States of the Southern Mahratta country. They are also numerous in Hyderabad, and form an important element in the population of the north-western corner of the Madras Presidency.

Population, and Distribution

At the Census of 1921, the Lingayats numbered, 714,734, 335,685 being males and 335,571 females. Their distribution over the districts and the Bangalore military station are given below :

1. Bangalore district ...	41,155	5. Chitaldrug district ...	122,171
2. Kolar "	11,066	6. Hassan "	84,528
3. Tumkur "	91,019	7. Kadur "	62,754
4. Mysore "	188,297	8. Shimoga "	104,538

Language

The Lingayats of Mysore speak Kanarese as their mother tongue. They are more literate than other people of the State except the Brāhmins and the Jains. There have been among them some Kanarese scholars and writers. But recent immigrants from Bellary and the adjacent districts to Mysore speak Telugu.

Habitations

The Lingayats of Mysore live in houses similar to those of other communities and call for no special notice.

Internal Structure of the Community

Endogamous Groups. The Lingayats come under four main groups, the first being jangams who are the priests of the community. The second group includes those who were the first converts to Lingayatism, and gradually closed their ranks to new comers. They are the Linga Banajigas of the Telugu country. In Mysore they are known as Vira Śaivas. The third group consists mainly of the occupational castes, such as the Telis or Gānigas, Pānchālas, Kumbhārs, Sāles and others. They belong to their respective castes and profess the Lingayat faith. The fourth group comprises members of the lowest unclean castes, such as the Holeyas, Madigas and the like.

In the Bijapur District Manual the following endogamous groups are given, namely, 1. True Lingayats, 2. Affiliated Lingayats, and 3. Half Lingayats.

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The True Lingayats consist of the three following sub-divisions, namely 1. Jangams, 2. Śilavants, 3. Banajigas, and 4. Panchamasāles. Jangams are either Virakthas (celebrates) or Grahastas (married). The former are again either Śāmanya or Veśēsha Nirābhāra Virakthas or ascetics. Ganāchārs (managers), Madapathis (servants of Mutts) who are servants of jangams. They are considered inferior to Jangams, because they have not undergone *aitan* or initiation (*diksha*). There is no intermarriage between them and the real jangams. Śilavants (Agasāle), Banajigas and Pachamasāles who belong the jangam group are in the opinion of Kāsināth Sāstri and others, not to be classed among them. Śilavants contain the following sub-groups, namely, 1. Chilmangai, 2. Holiyachabalkis, Dhulpāvads, and Chalgeribalkis. They are, says Mr. Kāsināth Sāstri, true Lingayats, but are merely Laukikas. Panchamasāles or Panchcharadavaru are Laukikas of disciples, and belong to the same category as the Banajigas. That a Panchamasāle boy may become a jangam or even a virakta, is in the opinion of the Sāstriji against the Śāstras.

Affiliated Lingayats correspond to the occupational castes mentioned above.

Half Lingayats contain all the low castes that retain the caste customs, and observe the Lingayat faith.

In the Dharwar Gazetteer are also found the same sub-divisions, but Kāsināth Sāstri, manager of the Panchāchārya Press and the editor of a paper in Kanarese opines, that the Lingayats of Mysore and elsewhere come under two broad divisions, namely Śuddha Vira Śaivas, and Mīśra Vira Śaivas. The caste observances are similar to those of the views of Mr. Kribhasava Śāstri already mentioned. They observe the four-fold division of caste, and Varnasramadharms of Brāhmins from whom they do not differ much. Both the affiliated and half Lingayats are classed under Mīśra Lingayats who are, in a way, like the converts to Christianity. He further says, that the members of his community, are not as numerous as the others. Here again there is a tendency to revert to the Hinduism from which their fore-fathers seceded.

True Lingayats

The Lingayats, as already referred to, are known as Śivāchārs, because they pre-eminently observe the tenets of Śaiva religion. They are also called Śiva-bhaktas or devotees of Śiva. They are known as *Viraśaivas*, because of their never failing zeal and unflinching firmness to observe the tenets of their religion. They use the word *Bavis* to denote the non-wearers of linga. The word *bhavi* is connected with *bhava* which signifies *samsāra*. Hence men who are worldly and lacking in wisdom are called *bhavis*. They are either *vaidikas* (priests) or *laukikas* (laymen). The former are called jangams who are regarded as moving and living lingas and Śiva-Jnānis. They are called Maheśwara on that account. They are adored in preference to those installed in temples. They smear their whole body with ashes and wear garlands of Rudrāksha beads. They are of two classes—Bramhachāris and Grahastas. The former are divided into three sub-divisions, namely, Pattadaswāmī, Charamurthiswāmī and Viraktas. Bramha-

chāris (celebrates) may be Pattadikāris (heads of mutts), wield high powers, and have royal pomp. Charamurthyswāmi or Charapathis are also celebrates equal in status to Puttadaswāmi, and are also heads of mutts. They succeed to the throne of mutts in time. The third class of Bramhachāris are Viraktas or Sanyāsīs, and are also called *Atitas* similar in status to the *Avadutas* of the other Hindus. Atitas are so called, because of their having avoided all worldliness, and having been free from all cares. They do not live in towns and villages, but are more of the nature of recluses. They are not allowed to become gurus or spiritual guides, nor to exercise any religious authority over the Lingayats. They are expected to devote their time solely to the perusal of religious scriptures and to explain them to others. When they grow very old, and death is near at hand, they choose a successor from some religious or *gurusthala* family, generally a boy under sixteen years and his close relation. Only Bramhachāris become Sanyāsīs. If others become they are not respected, nor can they become heads of mutts.

Pure Lingayat Sub-Groups

Gurusthalas can have their children chosen for *pītha* (as heads of mutts), and can become heads of Lingayat laymen. To keep their families pure, they are not allowed to marry widows or divorced women, but can enter conjugal relations with the maidens of good families. Gurusthalas conduct all religious ceremonies on occasions of births, marriages and deaths. The jangams are generally addressed as *Ayyas*. The Pattadikāris and Charamurthis move about to manage the affairs of the mutts to collect the dues and presents to guide their assistants called *Māris*, young men. The *Māris* do all the light work of the mutt, such as bringing flowers, cleaning vessels for puṇas and illumination before them. The Charanthis like Pattadikāris never marry, for they are also the heads of Mutts. Among the *Māris*, those who are not intended to rise to the status of Pattadikāris, may marry as they choose. The Gurusthalas generally lead a married life, and have relations with them. They stay in a part of the mutt with family.

Staldavaru

denotes that they are of the original locality and stock. *Panchacharadavaru* signifies those that observe the achāras—*Britthyachāra*, (the conduct of being a devout servant of Śiva); 2. *Ganachara* (conduct of being a spiritual servant of Śiva); 3. *Lingachara* (conduct worthy of a linga wearer); 4. *Sadāchāra* (conduct worthy of a saint); and 5. *Śivāchāra* (earnestness in devotion to Śiva).

Vastradavaru are so called because of their trade in clothes to cover the Linga.

In Dharwar and the adjacent districts, jangams are classes into Silavants, Banajigas and Panchamasāles. The former are traders, and the latter cultivators. All these belong to the original stock. Besides these, there are Vibhūdiyavaru who sell *vibhūti* or holy ashes. They cannot take part in any religious ceremony. Gandujoliyavaru are so called, because of their begging alms in their begging bags. They are mostly traders and have no religious education. They have no *diksha*. They sell *pansupari*. Tirukas are also beggars who sometimes do agricultural work.

Besides those mentioned above there are also foreigners, Badagavalaru (those that have come from the north); Bellarivaru (those that have come from Bellary); Ārādhyavaru (those that are fit to be revered and belong to the original stock). They are different from the Āradhya Brāhmins who correspond to the Śivadwijas or Sivanambis.

Misra Virasaivas

Conversions to the Lingayat faith were made from various castes from time to time, so that the total number of endogamous groups are rather large. The chief among them are the following, namely, Panchamasāliavaru, Sādaru, Nonabaru, Silavantarū, Kāvadigarū, Malavarū, Melpavadadavarū, Dhulpavadadavarū. There is no intermarriage between the members of these castes, nor do they have interlining. But they can sit to dine in different groups and rows in religious mutts whenever occasion necessitates. The proverb is 'Uttake Sivachara, Koduvadake Kulachara.' Strictly speaking jangam is not an endogamous group, but is a religious order. Likewise Banajigas ought not to form a caste, since their occupation is trade, but they form a distinct caste. Panchamasaliyavaru who form the bulk of the Lingayat community in the Bombay Presidency are rarely found in the Mysore State. They are allowed to interline with the higher classes.

Sādars form a division of the Okkaligas, and their name signifies 'saint-like.' They wear the linga and avoid flesh and liquor, allow divorce and widows to marry again. Nonabas say that their progenitor was created by Śiva to supply the world with food at the request of Bramha. He was named Indragupta, and his wife Karune. They produce nine kinds of grain, and had them heaped as high as Mount Meru. He would not distribute before offering them to Śiva. But a gigantic fly sat upon it, and would not leave it. Indragupta tried to chase it away in vain. Satisfied with his devotion, Śiva assumed his divine form, and appointed him and his progenitors as purveyors of food for mankind. The present Nonabas claim to be the descendants of his four sons. The Nonabas are not considered as belonging to the pure original stock.

In the Mysore State, Silavants (men of good conduct) were chosen by the mutts for shaving the *madapathis*, and other men of high rank only. They were not shaving the *bhavis* (non-Lingayats) and in course of time they have become professional barbers and serve *bhavis*. Kāvadigas were cattle-herds, when they were admitted into the faith, and they follow the same occupation at the present day. Malavas are Lingayats in the interior of Malanad (Shimoga district) and they are of four sub-groups, namely, Muskinamalavarū, Nirumalavarū, Baligalumalavarū, and Gaudamalavarū. The women of the first sub-group wear a mask or veil when they go out. It is certainly a remnant of the gōsha system, but they do not observe strict gōsha. The women of Nirmalavarū group, are so called because of their carrying a water-pot on their heads. Malavas and other groups are found in Shimoga, Shikarpur, Sorab, Sagar and Thirthahalli. Melpadadavarū are found chiefly in Dharwar, and they are so called because of their covering the waterpots to prevent their being seen by *bhavis*.

Dhulpavadadavaru

of whom a few families are found in the Hassan district are said to avoid the dust of Bhavis by covering their bodies with a long robe. There is however another explanation, that *parada* is a corruption of *pādodaka* water collected after washing the feet of jangams, *dhūl* means dust so that the name denotes that they bear such water on their head. In any case they are very religious.

Exogamous Clans

The Lingayats claim to be descended from five acharyas: Revana-Aradhya, Marularadhya, Ekoramaradhya, Panditaradhya, and Viswaradhya, all of whom sprang from the five mouths of Siva, namely, Sadyojata, Vamadeva, Aghora, Tatpurusha, and Isanya. These Acharyas had their respective eponymous sections, known as Vrishabha, Nandi, Bhurangi, Virbhadra and Skanda, each of which was further split up into twelve *bhagis* or subsects. The *bhagis* traces its origin to a single ancestor who is regarded as its progenitor.

From the foregoing account of the *gōtras* and *pravaras*, it may be seen that the five founders of the new school of philosophy and their followers have given rise to the present Panchamasalis-Mākhāri, Kilāri or Kamāri, Purāri, Smarāri and Vedāri, all of whom are Śiva Brāhmins called also Arādhyā Brāhmins who are opposed to the performance of sacrifices and other ceremonies prescribed in the Vedas.

Marriage Prohibitions

This well defined system so ingeniously constructed, enabled the community to organize itself into a separate sect. It forms the basis for the connubial arrangements of the enlightened and aristocratic members of the sect. But the masses known as *Miśra Virasaivas* are too ignorant to understand its significance, and therefore regulate their marriages mostly by their original caste customs. A man cannot marry a girl of his own *gotra*, even though he belongs to a different *bhagi*. He may marry the daughter of his maternal uncle or paternal aunt. Two sisters may be married to the same man, but not at the same time. The laymen may marry within their own sub-caste. The jangams may marry in all castes provided they are Lingayats. The Śuddha Virasaivas will not tolerate this. Polygamy is allowed to any extent theoretically. The Lingayats marry their daughters as infants, because social stigma attaches to the parents of a girl who attains puberty before marriage. Exchange of girls is allowed between two families.

Marriage Customs and Ceremonies

Marriage ceremonies of the Miśra Virasaivas or the affiliated lingayats are similar to those of the castes to which they once belonged.

Among the Śuddha or true Lingayats, marriages are arranged by the parents of the parties, the first step towards forming the proposals being taken by the parents or guardians of the bridegroom. After the preliminary negotiations are agreed upon, the *nischithartha* ceremony is performed, at which the bride receives presents of clothes, and jewels from the bridegroom's party. The auspicious day for marriage

is fixed with due consideration of the astrological data presented by the horoscopes of the bridal pair. A marriage pandal consisting of twelve or sixteen posts is erected, the milk (wedding) post being of umber (*Ficus glomerata*) to which are fastened leaves of mango (*Manganefera indica*), paḷās (*Butea frondosa*) and banyan (*Ficus bengalensis*). Raw cotton thread is bound round it and a lamp is kept burning upon it. The marriage ceremony generally extends for five days, but in some cases the celebration lasts only for a few days.

Previous to the auspicious day fixed for the marriage five married women have their laps filled with fruits, betel areca nuts, and pounded turmeric roots. On the same or the following day, they invoke the family and tutelary deities, and offerings are given to them. A feast is given to the jangams the relatives of the parties in their respective houses. Twelve *Arizenis* are made ready with rice, *dhal*, *vasanta* and water. This custom is not observed by the true Lingayats. On the first day the bride and bridegroom sit on a blanket, and married women rub their bodies with turmeric paste. A light is waved round in front of them when songs are sung by the women present there then. This is called *arasiya* day. On the second day the boy's father places the wedding costumes and jewels before his family deity, and offers special prayers along with the jangams. Both the castemen and the jangams are treated to a feast. Guru's *dhulpadodaka* (water collected after washing the feet) and *karune* are given to the pair. On the third day, the bride and bridegroom sit on a bull, the girl being in front, proceed to the temple near by, when they break cocoanuts and worship Basavaṇṇa. Nowadays, horse, motor car, or a horse carriage takes the place of the bull as vehicle. Śuddha Virasaiva gurus adopt the palanquin. After worship they return home. In a family where Virabhadra is worshipped, the following procedure is adopted. Early in the morning after the bride and bridegroom have been smeared with turmeric paste and oil, and bathed with warm water, a *mathapati jangam* (the head of a jangam monastery) is invited to perform the worship of Virabhadra. The jangam breaks an earthen pot horizontally into two equal portions, and forms a sort of pan of the two pieces by placing the lower portion of the pot into the inverted upper portion. In the pan he makes a fire, and throws over it some *guggula* (the fragrant resin of *balsamodendron mukul*) until it bursts into a flame. His waist is girt round with a *sari* and a string of bells, and his breast is adorned with images of Virabhadra. Holding the firepan in the left hand and a sword on the right he goes in a grand procession to the temple of Virabhadra dancing and flourishing the sword all the way, and singing praises in honour of the deity. On arrival at the temple, he places the sword before the God, and worships him with offerings of flowers and cocoanuts. After the bridal pair who accompany the procession have made obeisance to the deity, camphor is burned and coconut kernel is distributed to the assembly. The party then return.

On the fourth day the actual marriage ceremony takes place. On the dais a blanket is spread on rice for the pair to sit on, in front of which is a square, made of rice. In the four corners and the centre are placed five *kalasas* (pots of water) with *tāmbula* and *dakshine* in front of each. The five *kalasas* represent the five

āchāryās whose blessings are invoked. Strings pass round the neck of each five times, and one end of it is held by the pair. Near the central one is placed a *tālī* or marriage badge, kept in a vessel of milk or ghee. The guru wears a *pacitra* made of *dharbha* grass on his right foot. The left hand of the bride and the right hand of the bridegroom are joined together with *dharbha*. The pair wear the *kankaṇa sūtras* on the wrists. When all this is ready, the priest blesses the *tālī*, and announces that it is ready to be tied round the neck of the bride. The bridegroom lays his right hand on the right hand of the bride, on which the priest places the *tālī*, and drops on it water, ashes, and vermillion, with which he makes a mark on her forehead. Similarly a mark is made with ashes on the forehead of the bridegroom. The guru then gives the order, and the bridegroom ties the *tālī* round her neck. The purohit then shouts *Samuhuriam, Savadana* (attention, auspicious time), when all the people throw rice on the heads of the married couple. Knots are made at the hems of their clothes with a little turmeric powder and areca nut. The knotted hems are tied together. The guru then ties a turmeric root to each end of the pair of strings he was holding, and ties one to the left wrist of the bride, and the other to the right wrist of the bridegroom. The bridal pair prostrate before the *guru*. The marriage is now complete. In many places the pair throw cummin seeds and jaggery on each other's heads, and some of these are tied to a corner of their clothes.

On the fifth day in the evening the pair go in procession to a Basava temple, and after breaking cocoanuts, and burning camphor they return home. Then they remove *kankaṇa* threads. But before they enter the house, boiled rice and a lighted lamp full of ginja oil are waved round the face of the conjugal pair, and thrown out. The parties then disperse.

Among the pure Lingayats of Bangalore and Mysore, marriage celebrations in these days are more or less similar to those of the Brahmans, the main programme of which are *nischitartha* worship of the family gods and a feast thereafter, installation of the main posts of the pandal, auspicious bath on the first day, *punyaḥa*, *nandi*, *ankurarpana*, *mantapa devata prathishtha*. Then follow on the next day, *Kalasasthāpana*, *kankanadhāraṇa*, *bhashingadhāraṇa*, *kāsiyātra*, *madhuparka*, *kanyadana* according to the Bramha form of marriage, touching the navel of the bride, *tālī* tying, worship of Siva and Uma, *pañigrahana*, exchange of garlands, gifts to women to please the goddess, *saptapati*, bathing with the water of the *kalasas*, *phalapuja* (distribution of fruits betel leaves and areca nuts). Among some Rudrahōma is substituted for Uma-Maheswara pūja. On the night of the fourth day the pair sit for *urutāni* and *uyyale*; then airani *pūja* towards the end of the night, *nāgabali*, *vasanta pūja* and *mangala snāna*.

Married women play the part of obstructing entrance through the door, conducting *urutani uyyale* and the like, pounding grains, turmeric and serving the pair with *buvva*. The priestly classes regard *saptapati* as the most important part of the ceremony, as it brings the marriage to completion.

Many non-Brahman customs still survive in the marriage ceremonies of the Lingayats, and these testify to the former relation to the caste to which they

once belonged. As an example of the kind may be mentioned the bridegrooms surreptitiously taking away a *kalasa* or *gindi* to be brought back in procession to the bride's house. Among others is the custom of an elderly couple holding a *sadi* by the ends with a cocoanut and bunch of plantains on it, and exchanging the articles, and finally taking away of the cocoanut by the bridegroom's party, and the plantains by the other. Throwing of cummin seeds, installation of *arivani*, milk-post, also searching the pot and the like are non-Brahmanic. Further details vary with different classes of Lingayats, so much so that the Malavas in Malapad and the Sādars in the Maidan districts have totally different details. Grāhapravēsa or the first entry of the bride into the house of her husband after marriage takes place on an auspicious day. She is asked to smear her hands with turmeric water, and make an impression of her palm on a conspicuous part of a wall of the house. The ceremony of searching out a ring and a fruit in a rice pot is then gone through. The wife then sits facing her husband, and throws rice on his head.

A man who marries for the third time is first married to an ekka plant (*calotropis gigantea*) before the regular marriage. The third marriage is believed to be inauspicious, and not prosperous. Therefore the adoption of this course is believed to nullify the evil that may take place against the wife.

Among the pure Lingayats bride-price is not in force; but the bridegroom's party present jewels, wedding garments and the like to the bride; and sometimes they bear the whole cost if the bride's party is poor. The bride's parents generally present the bridegroom a pair of rings, a pair of ear-rings and some clothes. If they are very poor, they give only a pair of *pañchais*, a ring and on *Kantaraya-hana*. Thus there is no obligation on either side for money and status to guide them. Among the lower classes the *tera* and other customs prevail as they are before affiliation. Marriage expenses are not very heavy among the Lingayats as among other communities. A poor family may spend about a hundred rupees, while a rich one may spend a few thousands. A man marrying a second time generally makes some concessions to the bride's party, if they are poor.

Puberty Customs

When a girl attains her age, she is lodged in a room, and is under seclusion for three days. She is bathed every day during this period, and dressed decently. She is brought before married women who place in her lap two cocoanuts, two dates five limes, five betel leaves and arecanuts. Songs are sung by elderly women at the time, and *ārathi* is waved round her face to avoid the potency of evil eye. The girl is fed during these days with nutritious diet. She is allowed to bathe and worship the linga as usual, and no pollution is observed then; but she cannot enter into the god's room or the kitchen. She bathes on the fourth day when the caste women, friends and relations who are invited are treated to a feast. For subsequent monthly sickness no such formalities are observed. The true Lingayats only allow her to worship her own linga, and in other respects she is under pollution. If the girl is already married, news will be sent to the family of her husband, and presents are

generally sent to the girl. The nuptial ceremony will take place in sixteen days. If she is not married, consummation will take place only after three months.

Nuptial Ceremony

An auspicious day is fixed in consultation with the astrologer, and on that day the conjugal pair bathe early morning, take *punyāha* (sanctified water), worship the feet of the guru, and distribute fruits, betel leaves and arccanuts to the assembled guests. In the evening *arathi*, *akshate* take place, and at the auspicious hour the bridal pair are led to the nuptial chamber. The girl's parents provide them with bedding and other necessities.

A married girl generally resides with her parents till she comes of age but may visit her husband's family on special occasions. Regular family life begins after consummation.

Adultery and Divorce

Adultery is looked upon with aversion by the members of the community. A guilty woman is brought to the notice of two families and the leading members who after necessary enquiry permit her husband to divorce her. Among the true Lingayats she is not allowed to enter into conjugal relations with her paramour, but among the affiliated and half Lingayats, the custom is in vogue. Marriage is permissible under the *kudike* form, if he happens to be a member of the same caste. In that case she returns the *tali* to her former husband.

Widow Marriage

Remarriage of widows was one of the points on which Basava insisted, and was probably one of the biggest bones of contention with the Brahmans. Widow marriage is allowed at the present day, but the authorities of Ujjini deem it fit to disregard it. It is said that it is prohibited among the Jangams and pure Virasaivas, and that among other classes of Lingayats, it is the growth of custom. Widows do not shave their hair on the head, though glass bangles and the *tali* (symbols of marriage) are removed. Among the Misra Virasaivas, widow marriage is allowed in the *kudike* form, and a Ganachar presides over the formalities. Wedding does not take place in her own house, nor is it attended by married women. It takes place in the dark fortnight of the month, and the wedding garment presented to her by the husband must be worn in a dark room. Among the Sadar Lingayat a widow is allowed to wear the *tali* and the bangles. A woman married in the *kudike* form is not allowed to wear toe-rings again, nor is she allowed to have the vermilion mark on her forehead, nor to wear the *tali*. She is forbidden to take part in any ceremony along with married women.

Post-Natal Ceremonies

When a woman in an orthodox family is big with child, she has to wear a *linga* for the sake of her child; for it is believed, that the embryo begins to have life during that month. Soon after delivery, the mother and the baby are washed,

and the *linga* is removed from the arm of the mother, and tied round the neck of the child. On the eleventh or twelfth day a jangam is invited, and with his *dhulpadodaka* (water collected after washing the feet), the house and all the members of the family including the mother and the baby are purified. The chief member of the family seats the jangam on a *gaddige* (raised seat) and collects the water in a basin. Drops of water are forced into the mouth of the baby. When the priest finishes the *puja*, he is given *tambittu* (sweetened rice and flour), soaked pulse fruit, which is called *krivakattalai*. Then on a plantain leaf rice is heaped and a *kalasa* is installed on it. The priest worships the *kalasa*, takes the child in his arms, and washes the child's *linga* by *panchamvruse*. After tying it round his neck, he mutters *Sivapanchakshari mantram* in its right ear. It is called *karnabodha* (instruction through the ear). Then in consultation with the members of his family, he gives a name to the child. In the Bombay Presidency, after the birth of a child, five married women go to a river or a well, worship Ganga, and bring a pot of water. The mother receives it at the door, and places it under the cradle on cholam. The child is then put in a cradle, when a name is given by the maternal uncle or aunt. Immediately all the women assembled assault the namer with their fists. After this jangams are fed, and wet grain is distributed. The names of boys and girls are those belonging to Śiva and his consort. Sometimes they have the name of Basava, *guru* or *acharya*. The following are some of the names in vogue among them—

MEN	WOMEN
Basavalingappa	Basavamma
Channabasavappa	Guramma
Gurulingappa	Channabamma
Gurubasavappa	Devamma
Karibasavappa	Guramma
Mallikarjunappa	Gangamma
Mahesvarappa	Nirvanamma
Nirvanappa	Parvatamma
Nanjundappa	Omkari
Omkarappa	Siddamma
Rudrappa	Viramma
Siddilingappa	Chikkabasavamma
Virabhadrappa	Revanamma

Diksha or Aitan (Initiation)

The rite of *Aitan* or initiation is performed for the unmarried sons of all jangams. When it is performed on a youth he becomes fit to hold, the highest religious posts, and is fit to become a Mahadayya or the head of a religious house. A jangam who has no sons has the rite performed at his expense on one of the sons of a lay disciple below the Panchamasali group. The boy who is chosen from a Lingayat family should be of respectable parentage and his ancestors, both male and

female side, even to the eleventh generation, should not have descended from married widows. For this reason the sons of *mathapathis* or headles and of *ganachars* seldom undergo initiation or *aitan*. A boy is initiated when he is between eight and ten years of age. The ceremony takes place at night, so that no non-Lingayat may see it. It should take place in one of the seven months from *Vaisach* (April-May) to *Phalgun* (February-March) inclusive—on one out of eight days in either fortnight, namely, the second, third, fifth, seventh, tenth, eleventh, twelfth or thirteenth—on either a Monday, Wednesday, Thursday or Friday, and in one of the lower mansions or nakshatras, namely *Anuradha*, *Hasta*, *Magha*, *Margasirsha*, *Mula*, *Revati*, *Rohini*, *Uttara*, *Uttarashada* and *Uttara-bhadrapada*. If the boy is to become a *virakta* or celibate, his initiation is performed in the dark half of the month, and if he is intended to be a *grihasta* or householder, the ceremony takes place in the bright half of the month. In an initiation *bhusuddhi* or earth purifying is the first observance. Either in a religious or a dwelling house, a piece of ground eleven and a quarter to twelve and a half or eight and a quarter feet is dug, seven and a half to eight and a quarter deep. Bits of stone and tiles and other larger objects which may be found in the pit are removed, and it is filled with fresh earth which is beaten hard. At the same time the house is well white-washed, and painted, and its floor cow-dunged. On the auspicious day fixed for the ceremony, a small bower with a canopy of silk cloth is raised on the sacred spot thus prepared. At the entrance of the bower an arch is made of either of two plantain trees or sugarcane stalks. The flower of the bower is plastered with *gorachan* or *bezoar*, cow-dung, clarified butter, cow's milk and cow's urine and on it is drawn, a large parallelogram with lines of quartz powder, and within it, three small parallelograms. Of these, the first which lies farthest from the entrance, measures three feet and a quarter. It is covered with a folded silk or woollen cloth, and is set apart for the guru or initiator. The second or middle one is six feet by two and a half feet. In the centre and each corner is set a *kalasa*, brass or copper vessel with a narrow mouth, and dome-shaped bottom. These five vessels represent five mouths of Śiva, and the five gotras or family stocks which is believed to have sprung from them. The names of the five mouths are Aghora, Īsānya, Sadyojāta, Tatpurusha, and Vāmdev. Of the five jars Sadyojāta is placed at the corner next to the guru's right hand, and the Vāmdev at the corner next to his left hand. Opposite the Sadyojāt is set the Tatpurusha and opposite the Vāmdev the Aghor. In the centre is placed Īsānya. Each jar is covered with five pieces of cloth, white, black, red, green and yellow, and before each of them are laid five halves of dry cocoanuts, five dry dates, five betel leaves and five copper coins as also five turmeric roots. The third or the last design, which is not a parallelogram, but a square each way is close to the entrance of the bower. The square is covered with a woollen cloth seat, and is occupied by the boy whose head has been completely shaved, with a *sikha* on the back. Since then he is naked and fasting. Near the guru are placed a small vessel, called *gilalu*, a conch shell and a cane. Behind the boy sits a man belonging to a boy's *gotra* with cocoanut in his hands. This man bows to the guru and says 'excellent teacher purify this body of flesh and blood.' After him the boy bows

also to the guru, and worships an earthen vessel filled with water, in whose mouth is a cocoanut covered with a piece of cloth. The boy first marks the vessel with sandal paste, burns frankincense before it, and offers it molasses, fruit, betel nut, betel leaves and money. At the end of the jar worship, a string composed of five strands is wound five times round the jars, the guru and the boy in the following order, each object mentioned being encircled five times before passing on to the next—Īsānya, Sadyojāta, Īsānya, guru Isanya, Vāmdev, Īsānya, Aghōra Īsānya, boy, Īsānya, Tatpurusha. When the guru and the boy are thus seated, the *māthapati* or Lingayat beadle, worships the linga which the boy wears and his hand and head. He first washes the boy's linga with seven holy waters in this order, *gandodaka*, or sandal paste water, *dhulodak* or dust water, *bhasmōdaka*, or holy ash water, *suvarnōdaka* or gold water, *ratnōdaka* or jewel water and *pushpōdaka* or flower water. He then washes the linga seven times with a mixture called *panchamrit* or five nectars, namely milk, curd, clarified butter, honey and sugar. In the same way he washes boy's hand and his head. The guru then gives the boy a *jholi*, a begger's four-mouthed wallet and staff, and asks to beg alms of those who have to witness the ceremony. The boy is given *dhatubhiksha* or metal alms, i.e. gold, silver or copper. After gathering the alms the boy gives them with the bag to his guru, bows low before him, and asks him to return the bag promising to obey all his commands to the latter. The guru, after commanding him to live on alms, to share them with the helpless and to lead a virtuous life returns his bag. The boy gives him vessels and clothes, and to other jangams money and clothes. Besides these gifts the guru takes a handful of coins from a heap worth Rs. 3 As. 8, the rest of which is distributed to ordinary or Sāmānya jangams. The friends and kinsmen of the boy's parents present the boy with clothes and vessels; and he takes a light repast. On the next morning the boy's father gives a feast to the caste men and to the jangams of all orders as also to friends and relations.

Diksha

This is a cleansing rite on any *Panchamasali* lingayat who is entitled to the *ashlavarna* rites and who wishes to enter into a grade higher than his own or to readmit one who has been put out of caste. In the main points *diksha* does not differ from *aitan* or initiation; the only difference is that in the purification rite it is not necessary that a celibate jangam should be a performer. His place is often taken by a family priest. As the person on whom the rite is to be performed is old enough to pray for himself, no man of his family stock is required to sit behind him. The *diksha* rite can be performed on twenty or thirty persons at the same time. When a person has undergone the rite, and has entered into a higher grade, he or she does not eat with his former kinsmen. But this contingency rarely arises except when a girl marries into a higher grade. The ceremony performed at the time of tying a linga on the child's neck or arm is also called *diksha*.

Upanayanam—Besides the ceremonies above mentioned the *Suddha virasaivas* perform also the *upanayanam* ceremony for boys corresponding to that of the *Viravaishnavas*.

(To be Continued)

CALCUTTA

L. K. ANANTHA KRISHNA AVVAR,

Instinct and Consciousness¹

The definition of instinctive behaviour has proved to be one of the most difficult problems of psychology. Formerly it was deemed to be adequate to say that it was the behaviour characteristic of lower animals in distinction from man whose behaviour was intelligent. Now it is acknowledged that the difference between man and the lower animal is rather one of degree than of kind. A comparison of the definitions of instinct in various psychological works will show how diverse have been the conceptions in the minds of the writers. Of late years the extended study of animal behaviour and the closer examination of the neurological associations of the mental processes has resulted in greater attention to the biological meaning of instinct. The works of Edinger, Sherrington, Jennings, Herrick and such notable neurologists, and of eminent psychologists who have turned to biology for help in the solution of their problems all indicate a different approach to the problem of instinct to that which characterized the older writers.

The neurologists believe that it is necessary to study the mechanism of instinct in the nervous system. They believe it to be impossible to understand such behaviour unless one knows something about the nervous mechanism by which a stimulus may bring about a reaction of the instinctive type. A number of investigators have carried on experiments with decerebrate animals—that is animals whose cerebral hemispheres have been either removed or put out of action—and have tried to get some light on the problem in hand from their observations. Such experiments have been performed with birds, frogs, dogs, cats and monkeys. It should be said that the sub-cortical centres and the spinal cord are left intact and functionally effective. The observations have led such scholars as Parnallee, Lloyd Morgan and Herrick to conclude that animals deprived of the cortex are able to perform all of the principal types of instinctive reactions. Some animals such as frogs whose cerebrum is relatively small show very little difference in behaviour as a result of their loss. This leads to the definition of instinct as sub-cortical activity. In the case of the higher vertebrates, at least, those co-ordinations involved in instinctive behaviour are localizable in the sub-cortical brain centres.

On this hypothesis how can consciousness be defined, and can its activities be located in the nervous system? The answer of Lloyd Morgan is that consciousness involves a sufficient amount of pre-perception as to condition the course of behaviour, in other words, profiting by experience. Intelligent or voluntary behaviour involves association and correlation of mental data, and involves much more delicate coordinations and adjustments than can be performed by the sub-cortical centres, cerebellum, and spinal cord. The behaviour of the decerebrate animal leads to the conclusion that it has lost those abilities to co-ordinate that are involved in attaching a meanings to situations. A decerebrate pigeon, for example,

sees no difference between a friend and a foe. Decerebrate animals appear to be capable of some of the emotional responses, but not of others. They show anger but not joy or affection. This has been explained on the ground that pleasure is an affective accompaniment of significant situations, whereas pain may be aroused on a purely physiological basis. Dr. Sherrington has shown that hemicephalic children, in the absence of the cerebral hemispheres and the mid-brain respond similarly to normal children in the presence of stimuli of an unpleasant character; but such responses may be accounted for on a purely physiological basis if pain may be aroused in situations that bear no significant meaning to the animal.

A study of the phylogenetic origin of the cerebral cortex has furnished data that seems to lend support to this doctrine. Edinger has shown that the cerebral cortex and related parts of the brain is a late development, and accordingly calls it the neencephalon or new brain in distinction from the brain stem and the cerebellum which he calls the palaeencephalon or old brain. We are familiar with illustrations such as that which McDougall reproduces in his *Outlines from The Outline of Science* in which we have a study of the evolution of the brain from the fish to the man. As the development passes through birds and mammals and finally through the ape we witness a progressive increase in the cerebrum, until in man it is the predominant part of the brain. There is no gainsaying the fact that this relative development of the cerebrum as compared with the cerebellum is directly connected with the evolution of man's higher mental processes. The nature of that relationship need not detain us now. The point is this. In animal behaviour the old brain apparently functions much more importantly than in human. Animal behaviour is proportionately much more on the instinctive level than human, and it has developed in the functioning of these lower brain centres. Even the most highly developed of the lower animals—the anthropoid ape—possesses a very circumscribed mentality as compared with man, as we have seen from the careful study of Kohler. It seems natural to conclude, and the experiments on decerebrate animals lend credence to the conclusion, that these sub-cortical centres are the centres involved in instinctive behaviour, and that even when higher types of behaviour are evolved, involving the operation of associative processes, the lower brain centres are all that are involved in instinctive behaviour proper. The function of the cortex is that of intelligent guidance; the sub-cortical centres function in co-ordinations involved in instinctive behaviour and in the physiological impulses that stimulate the visceral and vascular systems. The palaeencephalon, according to Edinger, can function in establishing new co-ordinations of a simple type between sense impressions and movement combinations, but it is unable to form associations or to construct memory images out of the several components. 'It is the bearer of all reflexes and instincts.' It is the neencephalon that is involved in all associations and in neural activities connected with intelligent behaviour. Edinger seems to imply that the neencephalon has nothing to do with instinctive behaviour, and the palaeencephalon nothing to do with intelligent behaviour.

In experience we know that often we may behave instinctively and yet at the

¹ A paper read at the Indian Science Congress.

same time be aware of what we are doing. Lloyd Morgan's explanation of this is that in instinctive behaviour as such consciousness correlated with processes in the cerebral cortex is a mere spectator of organic and biological processes at present beyond its control. As a spectator he affirms that consciousness receives information of such occurrences along the neural channels that connect the lower and higher portions of the nervous system. This does not mean for Lloyd Morgan such a breach between the old and new brains as it seems to mean for Edinger. Nervous pathways do connect the two portions of the nervous system. Further there are innate tendencies in the cortex also, inherited dispositions that belong to it constitutionally. The meaning is that when activities of an instinctive character take place they do not need cortical centres for their execution, and that if such centres are active it is only in the capacity of spectators of what is going on in the lower centres.

This position seems to lose sight of certain factors, partly neurological and partly psychological, which should not be overlooked. In the first instance, there is some doubt about all of the experimental data lending support to the argument. Karplus and Kreidl, according to Herrick, investigated the behaviour of decerebrate monkeys, animals in which next to man these centres are most highly developed. These animals were unable to feed themselves, and in general were very helpless, their condition being comparable to idiocy in human beings. Movements of all types were badly executed, and no animal survived longer than twenty-six days after the removal of the cerebral hemispheres. Investigations made by Sherrington on the motor cortex of the anthropoid ape indicated that the brain of the ape requires a much stronger electric current for stimulation than that of lower animals, even than lower species of apes, though at the same time not so much as that of man. This confirms the opinion that the neencephalon is a much more important organ for co-ordinations between the receptors and effectors than in the lower animals.

Obviously it is not easy to get data from the human animal. One case is recorded by Edinger and Fischer of a boy who lived for three years and nine months, an autopsy on whom indicated that there was complete absence of a cerebral cortex with no other important defects. During the entire lifetime of the child there was no observable development of either sensory or motor powers or of intelligence. It fed when put to the breast but showed no desire for food at other times. During the first year it lay in a deep stupor which was changed to an incessant crying from the second year on. It showed no facial expressions during its whole life, while Preyer observes an expression of contentment on the faces of infants when satiated even from the first day. The conclusion seems to be warranted that in the case of the human infant there is a functioning of the cortex right from the time of birth. The less developed the cortical regions, the less the animal is dependent on them for motor responses; the greater their development the more the disturbance to the animal by their lack. And this disturbance is one which plainly extends into the sub-cortical regions.

There is another point on which neurologist and psychologists are both insistent, viz., that the psycho-neural system acts as an integral unity. Sherrington's

whole book, *The Integrative Action of the Nervous System* is devoted to establish the fact of integration between the various parts of the organism. An organism is more than a mere collection of organs and segments. It is a functional unity in which the various parts are consolidated. The integrating action is observable in that the whole organism is directed, driven and controlled by the central nervous system, and in the case of man and to a lesser degree the higher apes that means by the cerebrum or neencephalon. It is questioning this fundamental facts of integration to affirm as Lloyd Morgan does that when instinctive reactions are taking place, consciousness acts only in the rôle of spectator. It suggests that the organism is really functioning in two somewhat disparate ways, the sub-cortical apparatus in effecting an instinctive response, and the cortical apparatus in making observations. The significant fact to observe is that the neencephalon has attained an importance of function in man unknown in the lower animal, except in a modified way in the anthropoid ape; and that it is essential for the effecting of certain reactions which the lower animal executes in its way through the apparatus of the palaeencephalon.

From the psychological point of view the argument of Lloyd Morgan is in danger of suggesting the old faculty method of approach. He himself realizes that and tries to make it clear that he does not desire it. Nevertheless a suspicion remains. The mental life is just as much an integral unity as the physiological, and further it is integrated with the physiological. We have proceeded too far to admit of any line that sharply divides reflexes, instincts and consciousness, be that line never so hypothetical. To be sure there is an evolutionary process in life, and the higher mental processes do not appear abruptly. But the evidence for integral action is compelling.

A. S. WOODBURN.

MADRAS

More Interesting Points in South Indian Philology

In my last article, I have attempted to point out that the languages of the South Indian Group cannot be treated as totally non-aryan and that an elimination of the Aryan element is necessary before the other aspects of it can be studied with authority. Incidentally, I attempted to show in a general survey some strong Aryan features in the morphology of these languages.

I shall in the present paper attempt to show (1) that the languages of the South Indian Group may be taken, as an individual Group—a fact assumed though not proved by the great Philologists of these languages and (2) that it is possible to arrange their dialectical variations according to definite laws and then (3) proceed to a determination of the roots of the South Indian Group in respect of their Aryan relationship.

Languages of South Indian Group as one Group

It is first necessary to indicate the assumption of every scholar of the South Indian Group, viz., that these languages form a group by themselves. The work of every writer on this group is in its entirety a proof of this fact, though no writer has given a special chapter or heading especially to establish the fundamental oneness of their origin. A common origin has to be assumed for these languages for more reasons than one :

(1) The primitive notions of things, such as for expressing (a) the parts of the body—Tala (head), Kannu (eye), Mukku (nose), vāyi (mouth), Kālu (leg) etc., are the same in all the languages, the changes if any being of minor dialectical importance at present.

(b) Primitive actions such as for Tinu (eat), Kanu (see), cheyu (do), po-vu (go), Naḍu (walk) etc. are similarly the same.

(c) Common place objects such as Mannu (earth), Minnu (sky), Kaḍali (sea), ēru (stream), Mala (hill), Maram (tree), etc. are expressed by common words. Let us take a particular branch of knowledge—say plants and trees—and see how far this relationship at origin can be established.

- (i) Tel. *ṇḍa*, Kan. *ṇḍa*—aerial root.
- (ii) Tel. *paṭṭa*, Tam. *paṭṭei*, Kan. and Tulu. *paṭṭe*—bark of a tree.
- (iii) Tel. *pāvu*, Tulu *pāvu*, Mal. *pāvu*, Kan. *hāvu*, Tam. *pā*—flower.
- (iv) Tel. *Mogga*, Kan. *Mogge*, Tulu. *Mugge*—bud.
- (v) Tel. *Gaḍḍa*, Kan. *gaḍḍe*, Tulu. *geṇḍe*—bulb.
- (vi) Tel. *Kāya*, Tam. *Kai*—unripe fruit.
- (vii) Tel. *Pinde* Tam. *Pingee*—tender fruit.

- (viii) Tel. *Kasugai*, Tam. *kasukai*, Tulu. *kaskai*—tender fruit.
- (ix) Tel. *Tōṭa*, Tulu *Tōṭa*, Kan. *Tōṭa*; Mal. *Tōṭam*, Tam. *Tōṭam*—garden.
- (x) Tel. *Chigiru*, Tulu *chigiru*, Kan. *chigiru*—leaf bud.
- (xi) Tel. *Chēva*, Tam. *Shēgu*—heart wood.
- (xii) Tel. *Gujju*, Kan. *Gojja*, Mal. *Kazh*—pulp.
- (xiii) Tel. *cheṭṭu*, Kan. *giḍa*, Tam. *seḍi*—tree.
- (xiv) Tel. *Vēru*, Tam. *Vēr*, Tulu *Bēru*, Kan. *Bēru*—root.
- (xv) Tel. *Vittu*, Mal. *Vittu*, Kan. *Bittu*, Tam. *Virai*, Tulu. *Bittu*—seed.
- (xvi) Tel. *Mullu*, Kan. *Muḷlu*, Tulu. *Mullu*, Tam. *Mullu*, Mal. *Mālu*—thorn.
- (xvii) Tel. *Sora*, Kan. *Sore*, Tam. *Sorai*—white pumpkin?
- (xviii) Tel. *Kariveṇṇa*, Mal. *Kariveṇṇa*, Kan. *Kariveṇṇa*, Tam. *Karu-veṇṇa (a) i lai* Tulu. *Kaibēv*—curry leaf.
- (xix) Tel. *Nāvudu*, Tulu *Nāvudu*, Tam. *Nāvu*—sesamum seed.
- (xx) Tel. *Kachōramu*, Mal. *Kachōla*, Tam. *Kachōra*—a kind of spice.
- (xxi) Tel. *Panchadāra*, Mal. *Panchadāra*—sugar.
- (xxii) Mal. *iruppa*, Tel. *ip̄pa*, Kan. *ip̄pe*, Tulu *ip̄pe*—Mahwa tree.
- (xxiii) Tel. *Cheruku*, Tam. *Karumbu*, Tulu. *Karumbu*, Kan. *Kabbē*—sugarcane.

2. With regard to the essential oneness of the mouths of the early representatives of the S.I.G. in the matter of the utterance of sounds, a proof of mine given at the conference of the Karnatak Sahitya Parishat at Dharwar in January 1919 may be briefly summarized.

Sound sift

kh > k ; chh > ch ; ṭh > ṭ ; ph > p.

Sanskrit—Kanarese

Khadira-kadira ; khaṇḍa-kanda ; Nakha-naka ; chhavi-chavi ; chhinna-cinna ; chhāṇḍasa-chandasa ; Maṭha-Maṭa ; Kāthe-kati ; Pantha-panta ; phala-pala ; phaṇi-pani.

Sanskrit—Telugu

Kharjāra-kajjāramu ; Kheṭa-kēḍemu ; Vṛthā-veta ; chhāya-chāya ; kathā-kata ; sphatika-patika ; chhidra-chirugu.

Numerous examples have been given for many other sound shifts such as *gh > g ; g > k ; b and v > m ; v > b* and so on and the following law has been enunciated.

Any particular sound difficult and foreign to the South Indian mouths was in all languages of the South Indian Group shifted to a suitable new sound, the same for all languages.

(3) As in vocabulary and in the structure of the muscular system of the vocal organs, so in the matter of grammar and idiom, the essential oneness of these languages at their origin is established as we shall see later on.

Dialectical variation of consonantal sounds

In determining the dialectical variations, Telugu and Kanarese and to a certain extent Malayalam and Tulu serve more usefully than Tamil, on account of a rule in the Tamil language that except initially a surd has always to be treated as a sonant. For the sound shift $g > k$ for instance, a g in Tamil is strictly k initially; and a k medially or at the end is similarly only g . It is true that in the case of Sanskrit words the original sound is retained, where the Sanskrit word is recognized, but the tendency in general is to observe the rule of the surd-sonant-shift. Forced consonantal changes of this type in sound-shifts cannot therefore admit of exemplification. With this limitation therefore a few ordinary consonantal changes in the passage of words from one language to the other may be noticed.

$s > ch$ soft $> sh$.

s of the $S I G$ changes into ch soft in Brahminized Telugu and sh in Kanarese.

This partiality for ch against s is exemplified even when the Vedic *Nasiketu* became *Nachiketu* in some of the Puranas.

Sedu, Br. Tel. *Chedu*, Kan. *Shedu*—bad.

Sipura, Br. Tel. *Chipuru*, Kan. *Shibari*—a broom for sweeping. cf. E. Sweep.

Servanti (Sans.), Br. Tel. *Chēmantī*, Kan. *Shēvantige*.

Seragu, Br. Tel. *Cheragu*, Kan. *Sheragu*—the sleeve of a garment.

Seru, Br. Tel. *chēru*, Kan. *Shēru*—to reach.

Tel. *Kasukku*, Kan. *Gachukkana*—sensation of a thorn piercing.

Tel. *Sajja*, Kan. *Chajje*—a kind of grain.

Tel. *Sūti*, Kan. *Chūti*—straight.

Tel. *Sāna*, Kan. *Chana*—A goldsmith's implement.

It may be surmised that in all these cases the initial s sound is really stressed to lead to ch and sh . Instances may be cited from examples like Icel. *Gusa*—E. *Gush*, Anglo-Sax. *lynis*—linchpin—(axle tree).

$r > l$

Sans. *Bhāra*, Tel. *Baru-vu*—Kan. *Baḷu-vu*—weight.

Tel. *Kṛinda* (on the ground), formative *Kṛī*, Kan. *keḷa*, below, lower down.

$g > k$

Tel. *Guraka*. Ancient Kan. *Kurim ke*—snoring—cf. growl.

Kan. *Guruchu*, Tel. *Kurucha*, short. Ger. *Kurznamen*—short names.

Tel. *Gujju*, Kan. *Kiggaḷu*, Sans. *Kubja*—a dwarf.

Tel. *Gajji*, Kan. *Kajji*—itch, scab.

Tel. *Ganima*, Kan. *Kanima*—ridge separating the squares in a paddy field.

Kan. *Gūṇike*, Tel. *Koliki*—corner of the eye.

Tel. *Guruthu*, Kan. *Kurupu*—a sign or mark for cognizing.

Tel. *Jūḍi gimja*, Kan. *kīra gi ḍa*—marking nut.

Tel. *Jummu*, Kan. *Gimma*—cheese.

Tel. *Jēna*, Kan. *Gēnu*—span.

Tel. *Chadalu*, Kan. *Gaḍalu*—sky.

Tel. *Chiku*, Kan. *Jivuku*—suckle.

As however a comparison of sound-shifts is not really possible until we eliminate from the modern forms all the changes that the original roots have undergone, apparent similarities only indicate, a need for study rather than establish definite laws of philological importance. I therefore close this sub-heading with a few apparent similarities in Telugu and Malayalam verbs:

Tel. *Duvvu*, Mal. *Kōvu*—to comb.

Tel. *Paḷḷu*, Mal. *Paḷikkū*—to hold.

Tel. *Piḍu-chu*, Mal. *Piḷhikkū*—to squeeze.

Tel. *Tummu*, Mal. *Tummu*—to sneeze.

Tel. *Karachu*, Mal. *Kaḍikkū*—to bite.

Tel. *Chūdu*, Mal. *chūdu*—to sneeze.

Tel. *Vāyinchu*, Mal. *vāyikkū*, to sound.

Tel. *Tīyū*, Mal. *Eḍakku*—to take.

Tel. *Marachu*, Mal. *Marakku*—to forget.

Roots

In determining the roots of these languages, it is necessary that the most ancient forms available are taken into consideration and the various changes wrought into them carefully eliminated. A few roots have undergone but little change in these languages and can be easily discerned. Words, really Aryan, though considered by classical grammarians as purely indigenous have alone been taken up for consideration.

1. Tel. *Kānu*, to beget, noun *Kānu-pu*. Germ. *gón-o*, a begetting, vedic Skt. *jāna-m*, Gk. *gōno-s*. Skt. $\sqrt{jā}$ —to be born.

Tel. *che-ppu*, Tam. *sol*, Indg. $\sqrt{sed}$ —to say.

Goth. *Smair-thr*, grease, fat, Tel. *cha mur-u* (both a noun and a verb) oil, to smear. Indg. $\sqrt{smer}$ —to be smeared.

Tel. adj. *pell-u*, too much in abundance, cf. E. *plenty*, Lat. *plenus*, Gr. *pleos*, $\sqrt{pel}$.—A number of words in S.I.G. belong to this root, e.g. Tel. *palu*, Tam. *palu*, many. Tam. *periya*, Tel. *pedda*—great.

Tel. v. *Aṭ-u-gu*, to go, cf. E. *arr-i-ze*, Lat. *ad*, to go. Ar. $\sqrt{ar}$ —go.

Tel. v. *Tar-u-gu*, to mince, to cut to pieces; San. *dāraṇa*, from $\sqrt{dṛ}$ —to pierce, Indg. $\sqrt{der}$ —

Tel. v. *Vir-u-gu*, to break, Skt. $\sqrt{bhid}$ —

Tel. v. *ē-gu*, to go, Indg. $\sqrt{ei}$; to go, Skt. $\sqrt{gam}$. Vedic $\sqrt{i}$ —

Tel. v. *agg-inchu*; to praise, Indg. $\sqrt{ag}$ —to rever.

Kan. v. *Kēl-u*, Tam. *Kēl*; to hear. Indg. $\sqrt{klu}$ —hear; Sans. *Śru*.

Tel. n. *Bradd-a*, a broken piece, *bradd-a-lu*, broken pieces, *bradd-a-lu-agu*; to break. Indg. $\sqrt{perd}$ —to break, wind.

Tel. adv. *Bāg-ā*, suitably, fairly, beautifully Indg. $\sqrt{pāk}$ —

Tel. v. *paḍu*,—to fall, Skt. $\sqrt{pat}$ —

2. A great many S.I.G. forms of this class, i.e. those whose roots have been preserved with less of change can be traced to Sanskrit of the Vedic period. A few examples may be cited :

- Tel. adj. *Kam-ma*, sweet enjoyable, Vedic, *kam* ---to enjoy.
 Tel. verbal noun, *kōta*, cutting. Vedic, *kṛt*—E. *cut*.
 Tel. v. *kon-u* Vedic *kṛi* informs like *kṛi-ṇā ti*—to buy.
 Tel. v. *Jar-u-gu*, to move, Vedic, *char*—
 Tel. v. *chē-ru-chu*, to gather, Vedic, *chi*—
 Tel. n. *dos-a-gu*, evil, Vedic, *duṣ*—spoil.
 Tel. n. *tola*, a hole, v. *tolu-chu*, to pierce, to make a hole, Vedic, *dṛ*—to pierce.
 Tel. v. imperative *pad-a*, go. Vedic, *pad*—go.
 Tel. v. *poṣa-gu*, thrive, Vedic, *puṣ*.
 Tel. v. *para-chu*, spread, Vedic, *prath*.

By far the largest number of roots are not so apparent at a glance, and the history of sound shifts, and the adjuncts that gathered around require a careful consideration before isolating the crude primitive forms. The individual grammars of these languages began at a time when the word-forms assumed a secondary stage, and the changes recorded thereafter were merely intended for correct expression rather than for a study of origins and the history and growth of language. The help that we can get from these grammars is none the less valuable in so far as they record the changes at their period. The primitive underived Aryan forms have however been critically studied by great Philologists like, Kittel, Gundert and Caldwell and Caldwell gives the following as primitive underived Indo-Europeanisms discoverable in the S.I.G. :

- (1) The use of *u*, as in Greek, to prevent hiatus.
- (2) The existence of gender in the pronouns of the third person and in verbs and in particular the existence of the neuter gender.
- (3) The use of *d* or *t* as the sign of the neuter singular of demonstrative pronouns or pronouns of the third person.
- (4) The existence of a neuter plural, as in Latin, in short *a*.
- (5) The formation of a remote demonstrative from a base in *a*, the proximate from the base in *i*.
- (6) The formation of most preterites, as in Persian, by the addition of *d*.
- (7) The formation of some preterites by the reduplication of a portion of the root.
- (8) The formation of a considerable number of verbal nouns, by lengthening the vowel of the verbal root.

What however now concerns us is the *Umlaut* and the *Ablaut*, of which I will take up the former for the present. Thus :

Goth. *baris* barley, Tel. *vari* paddy ; evidently barley and vari may not be expressive of the two botanical types but may have the sense of the staple grain of the respective areas. The effect of *i* in *baris* on its preceding *a* gave the A.S. *berc*,

Goth. *baḍ-i*, Tel. and Tam. *paḍ-a-ka*, a bed ; the *i* in Gothic does not certainly belong to the root, but is a formative suffix that gave the A.S. *bedd* and the E. *bed*.

Goth. *and-c*, end ; Tel. *an-chu*.

Goth. *Basi*, a berry ; Kan. *bittu*, seed ; Tulu *bittu* ; Tel. *vittu* ; Mal. *vittu* ; Tam.

Virai.

Goth. *Druggk-jan*, Tel. *trag-u*, A.S. *drencan*, E. *Drink*.

Lat. *catilus*, a bowl ; Goth. *katils*, A.S. *cetel*, E. *keittle* ; Tel. *kaḍa-va*, a pot.

Goth. *mati*, A.S. *mele*. E. *meal* ; Tel. *mēta*.

A.S. *thurh*, through, hence *thyrlian*, to pierce, Tel. *toluchu*.

It is possible to find cognates for the other vowels of the umlaut also which space forbids.

The similarities between the S.I.G. and the Aryan are thus confined not to a few stray instances, but are deep rooted and admit of a systematic study. It does not mean that S.I.G. is all or essentially Aryan but the points adduced are perhaps worthy of consideration for a systematic study of this aspect of the question. I shall in the next article try to make a systematic study of the Umlaut and the Ablaut in these languages.

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Madras.

Some Fundamental Conceptions in Probability¹

A reference to an encyclopaedia will show what otherwise might not be suspected that till comparatively lately probability was on the whole discussed more by philosophers than by mathematicians. The nineteenth century made a great difference and the application of the mathematical theory to affairs more serious than games of chance has given the subject a very different status. The success of Life Assurance Companies has convinced the man in the street. Some people of a scientific turn of mind might answer that the applications there are far from requiring exactness so that the test is by no means critical, but they have been convinced by the kinetic theory of gases in which not only the major laws but the deviations from them have been successfully dealt with, these deviations forming a very searching test of the adequacy of the theory.

It is to the judgement that philosophers have attached probability; mathematicians have attached it to the concrete happening, which they call the event. If one is dealing with the matter in a priori fashion, the philosophers' way is natural; but, on the other hand, the mathematicians have been more successful in developing the subject and this success should count for something.

Let us assume, then, in this respect the point of view of the mathematician. The first question that confronts us is 'Can we define probability?' Various attempts have been made; some have obvious flaws, some are not so conspicuously at fault, but nearly all fail when thoroughly tested. And, even if you do not expect the sharp-cut edges of a mathematical definition, most of them are still found unsatisfactory; they fail, not merely from a logical point of view, but in actual description of the facts.

In some cases the defect can be traced to the writers' not having made up their minds as to whether they are taking the practical, the pragmatic, point of view or the logical. In other words, they try to be logical, but the only logic they are familiar with, the mediaeval, is, alike by its merits and its defects, unsuited for the work.

Among the mathematicians who have dealt with probability the name of Poincaré stands high. His definition is: The probability of an event is the ratio of the number of favourable cases to the total number of cases, provided that these cases are equally likely. Burnside, in his *Treatise on Probability*, calls this, not a definition but a rule; and it seems to me that he is right. From what I am calling the practical point of view how is one to know what cases are equally likely? Two answers one is quite likely to get, if one puts this question to the man in the

street; one is Try it and see, and the other is One knows pretty well. A good deal can be said for the second answer. Several authors take the notion of probability as an indefinable, and hold that we have a sense of equally probable events which is fundamental. It may be crude, it may be liable to very decided bias, but it is to that that in all reasoning on probability we ultimately appeal.

A good parallel, it seems to me, is afforded by our sense of illumination. That sense does not seem to us very delicate, and ordinarily it is not so; but it can be made the basis of mathematical hypotheses. The results of the mathematical investigation based on these hypotheses enable us to construct instruments which we can use to check the practical soundness of the hypotheses, and to some extent the logical soundness. The use of the theory can now be pushed further till finally instruments are made which so successfully exclude disturbing factors and on the other hand establish conditions so favourable to discrimination that we can measure illumination to within less than two per cent instead of the twenty or so that our unaided vision might manage.

Now when this has been done it may be possible to establish a method of comparing illuminations which is independent of human vision, dependent, it may be on the use of the photo-electric cell. If, however, lights of given colour are to be estimated by our standard, a correcting factor will have to be employed.

The analogy here to our capacity for estimating probability seems very close, and so it is a plausible theory that a primitive faculty is involved in judgements of probability which can be put to better use under the guidance of a mathematical theory and recourse to which can be so economized that only a few references to it are needed in any one problem. As Poincaré's definition becomes the first step in the mathematical theory, Burnside seems justified in calling it a rule.

We may now examine more closely the foundations of the mathematical theory, and we shall do so from the point of view not of the logician but of the practical philosopher, that is of the man in the street when he is thinking a little more deeply and clearly than usual. In any book on the elementary mathematical theory will be found a statement like this, 'The probability of a die showing a four is one-sixth.' This is meant to be a statement about a probability, but the more experienced person it will strike rather as a definition or part of a definition of a true die. Has any of us ever seen a true die? How did he know it was true?

From the mathematical point of view it would require an infinite number of throws to prove that a die is true, and commonsense does not find much wrong with that. It merely suggests that a die not shown to be false by a week's play can safely be accepted as true for a night's play. But how many throws does it take to show that a die is false? Mathematics tells you that again an infinite number of throws will be required to prove that a die is false; that, in fact, there is no limit to the perversity a true die may indulge in, and that there is no way of distinguishing between the perverse conduct of a true die and the ordinary conduct of a false one. This commonsense asserts to be nonsense, and from our present point of view we must agree with commonsense.

But commonsense is not satisfied with the bare assertion, and proceeds to

¹ A Readership lecture delivered in the College on January 9.

examine mathematics as if the latter were a shifty witness; it gets most of the answers it desires and so decides it need pay no particular attention to what mathematics said at first. But to go into this matter would take us further than we are prepared to go.

Let us begin again by examining commonsense in turn; and find out its opinion of a true die.

Commonsense says that if you pay a reasonable price for a die, you may expect it to be true. This we may render; There is a probability decidedly greater than a half that the die is true. Commonsense continues: Give a die to an experienced gambler to play with and after a week he will tell you whether it is true. That is, probabilities have to be decided, by possible, nay, by reasonable experience.

But we are in danger of turning too practical. We shall have to be a little more general. I suggest this definition of a true die. A true die is one such that if to A who has had experience of the die, B reports the result of an experiment giving the numbers nicknames, say, cow, horse, monkey and so forth, A will be quite unable to guess whether monkey stands for ace or two or three.

Similarly a false die is one in the case of which A will be reasonably certain that, say, monkey is three. Of course there are degrees of falseness; and with a certain amount of experience on the part of A and of experiment on the part of B, A's conclusions may be more limited, say, that monkey is decidedly unlikely to be ace or six, but about equally likely to be two or three or four or five.

You may think this example rather trivial but it gives or at least suggests several important points.

In the first place probability is relative to experience; including in practical cases all a person's previous experience, and not merely what is, so to speak, on the file of the particular problem. If A were not, as we have rather supposed, a mathematician, but the experienced gambler we have previously applied to, his experience would naturally include some information as to what kinds of falsity were more common and this would affect his judgement.

Second, the case last mentioned of the two, three, four, five being alike suggests that equal probabilities are those which are indistinguishable; there may be some theoretical objection to this, but on the practical level we are contemplating it can hardly be gainsaid.

Third, for rougher work, probability may be sufficiently ascertained by assigning the event to a class with a range of probability not too wide for the purpose in hand.

The first point, about experience, might seem fairly obvious; but, as a matter of fact, it is not kept in mind as constantly as it should be. I heard a discussion at the Faculty of Actuaries' Hall in Edinburgh, between Prof. Whittaker on the one side and some of the actuaries on the other. What lay beneath their difference of view was not easy to grasp, but it seemed to be that while to Prof. Whittaker an actuarial problem, say of graduating data, seemed to be one in mathematics, to the actuaries it was one to be solved with the help not only of mathematics, but of

all their actuarial knowledge, partly explicit partly implicit. And, it seemed to me, the actuaries were right. The problems actuaries have to deal with now are largely small ones. They have to consider, for instance, whether a small but important class merits distinctive treatment. In such a case it is natural to take a formula from general experience, and employ the particular experience to determine the constants in it. That is exactly the method which would be employed by a physicist or engineer in testing a new material. He would not assume till his experiments forced him to it that the properties of the new material were essentially different from those of the ones he knew.

The second point is, to judge by some of the books, of very great importance. You will find in them long discussions of the rival claims of sufficient reason and cogent reason. There is sometimes very little understanding of what would appear to be pretty plain, that in probability we are dealing with practical problems, and we must make the best of the material we have. Sufficient—or, perhaps better, insufficient—reason says that probabilities are to be taken as equal when we know no reason to the contrary. Cogent reason says that probabilities are not to be assumed equal unless we can prove that they are equal. Now to a practical problem we must have an answer, and a bad answer is better than none; in fact, the bad answer may be not merely a way but the way to a better. So insufficient reason—otherwise the principle of indifference—must have it. 9912

It may be a help to the understanding of what I mean if I try to describe a problem given to Karl Pearson in 1906; a problem whose statement has done much to guide my thinking.

At that time London obtained its water from four or five sources. The water from each of these received a full bacteriological examination twice a week. But, in addition, each full working day, or about twenty-two days a month, a more summary examination was conducted by putting into culture tubes media, otherwise sterile, containing one per cent, one tenth per cent, one hundredth per cent and so on of the water to be examined. After incubation it was noticed which tubes showed colonies and which did not, for there were always some showing growth and some not showing growth. The problem was; from the available data, i.e., the records of the detailed and summary examinations for a few years, to construct a rule giving a figure of merit for a source on the basis of the results of the summary test for a month.

It may be seen that such a practical problem must have an answer, and if cogent reason prevents us getting an answer, cogent reason must go.

A similar retort can be made to the criticisms some books give of what they incorrectly call Bayes's rule. If insufficient reason gives a silly answer, then that is a new piece of evidence, and the scales are no longer evenly balanced. But I rather think the example is even sillier than that; if A is a not absurd hypothesis in a certain problem, and B is a different not absurd hypothesis; it does not follow that I shall not reach an absurd result if I assume them both at the same time. But, again, in practice, in spite of some inconsistency in the hypotheses, probably no such result would follow. But if, instead of getting a practical result out of it, I

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proceed to turn it into a mathematical exercise and turn it upside down and this way and that, I shall almost certainly get an absurd result.

The third point, that in practice a probability may not so much be that of the single event as that of the class to which it is assigned is also of importance. Keynes in his criticism of the arithmetical theory has missed this. When an underwriter quotes a rate for a bad risk, he is assigning the ship to a definite class of risks, that is, definite in his own mind.

It is important to notice that for sound practical reasons the classification may be taken coarser than it might easily be. It would be very easy for life insurance companies to distinguish five classes at least among those who propose to insure their lives, but so far as I know they only distinguish three, the middle one of which may be divided in practice. The decided majority, I imagine, of the proposals are accepted, which means that we have that proportion of first-class lives. The third class are the uninsurable. The middle class, of lives that are not first-class, may be met by increasing the premium or delaying the point at which full benefits are secured.

But, under the stress of competition, there is anxiety to get all the business one can, and hence the minimum standard of first-class lives is not likely to be very high. (This tendency would show itself in the much stricter examination to which a candidate in slightly doubtful health would be subjected when it was understood that he wished to insure for £50,000.) And I imagine there will be another reason for keeping the middle class low; almost certainly these will be much more troublesome than first-class lives, so there will be appreciable pressure on medical advisers to accept or reject outright.

This, I think, is about as far as our example of the die will take us. We may close with a brief account of the nature of an actual problem in probability and point out the part which commonsense has to play in the solution.

It may be said that a problem in mathematical physics consists of three parts. The first is the formulation of the problem in a form amenable to mathematical treatment; this involves, probably, the ignoring of many of the actual properties of the substance involved, the smoothing out of irregularities, for instance the convention that a piece of matter as it leaves the lathe is a true circular cylinder. The second is the solution of the mathematical problem so presented. The third is the translation of this solution back from mathematics to physics with the verification of the result thus reached.

Now there are exactly these three stages in an actual problem in probabilities. We have first, the statement of the problem in mathematical language, and this may be the most difficult part of the process. Second, we have the mathematical solution. Third, we have the application of this solution to the particular problem, and what corresponds in past to verification, the re-examination of the first stage to see whither in the light of the solution it is reasonable. It may happen that the solution shows that some outlying set of cases to which the mathematical statement is not fully applicable turns out to be of special importance.

This may happen fairly often; but apart from this we have quite regularly an important step to take. More often than not, the formal mathematical result is that

the probability of something, say A, is either 0.999 . . . , perhaps eight 9's before we come to a lower digit, or 0.000 . . . perhaps fourteen 0's before we reach a significant figure. It requires the exercise of a judgement, which I call commonsense, to assert that A does happen in the one case and is impossible in the other. And this exercise which I have thus formally shown to be necessary in reaching the practical solution of most problems I believe to be necessary in all.

It will now be, I think, fairly clear what I have aimed at. I have tried to examine the fundamental conceptions of the theory of probability, and I think I have succeeded in showing that although they are not difficult to understand from a practical point of view, they are by no means so simple as has sometimes, perhaps usually, been supposed. I have tried to keep as close to the practical point of view as I could. This has, I hope, made what I have said easier to follow; to have made it more formal would have added to the length, and greatly to the difficulty; while the increase to the usefulness would not have been proportionate.

EDWARD B. ROSS

MADRAS

‘Though He slay me, yet will I trust in Him’¹

Centuries ago a thinker remarked that ‘we live in an age in which superfluous ideas abound and essential ideas are lacking.’ This remark holds true whenever we are forced to turn our attention to the underlying principles of life from the trying situations that disturb life, whether it may be in national or individual experience. We are ready with praises and shouts of joy so long as we receive good at the hand of God; but we find ourselves often in despair and depression when what we call ‘evil’ is our share of life.

Job had piously recognized that God had a right to take back what He gave—wealth and children. He had even rebuked his wife when her faith had failed. It was commonly accepted that the lot of the righteous was blessed and Job was assured of his uprightness and fidelity to God. But experience of facts was making it impossible to hold on to the theory. All that faith which was deep-rooted in him was being challenged and his spirit was face to face with severe trial, a trial which became very acute when his friends visited him and attempted to console him with the popular views of the day. They could only see in his affliction a token of retribution. None but a serious offender could be so visited by God. They could only find in him a flagrant sinner and a consummate hypocrite. Since Job had applied the same view to his life in the past, particularly when he was prosperous, the judgement of his friends came to him with force. Could he now believe that God was angry with him? Against such a thought his conscience uttered its most vigorous protest.

This note of despair and depression is true not only of Job but of many a human soul. The mighty and brave heart of Moses exclaims: ‘Wherefore hast Thou afflicted Thy servant?’ ‘If Thou deal thus with me, kill me, I pray Thee, if I have found favour in Thy sight.’ Gideon cries: ‘O, my Lord, if the Lord be with us, why has all this befallen us?’ Elijah mourns: ‘It is enough, O Lord, take away my life.’ The indomitable spirit of Paul exclaims: ‘To depart and be with Christ is far better.’ In every part of human history we observe this weariness, discouragement and despair.

‘Through life’s drear road, so dim and dirty
I have dragged on to three and thirty:
What have these years brought to me?
Nothing except thirty-three.’—BYRON.

¹ A sermon preached in College Church.

‘O for a lodge in some vast wilderness
Some boundless contiguity of shade
Where rumours of oppression and deceit
Of unsuccessful and successful war
Might never reach me more.’—COWPER.

The air of human life is tremulous with sighs. We find it in our souls. It is part of our life. We are tired of the weary struggle of our hearts. Pain and suffering seem part of the environment in which we have to live. That which can guide us through triumphantly is an outlook upon life that rests on essential ideas. We lack a systematic view of life and so find ourselves often torn to pieces when we face trying situations in life.

A godless view lands us into a bitter pessimism. It prefers annihilation and extinction. It cuts at the very root of life. There is nothing cheerful about the universe. All hope is gone and everything is ghastly.

The other extreme will make all pain and suffering illusory and unreal. Such blindness to the ills of life leads us nowhere. It refuses to grapple with facts. It could only speak of the time near at hand when all our pain will be entirely transformed.

Fragmentary thinking leads to fragmentary living. Opportunist thinking will land us in chaos. We must have a view of life which will give the spiritual its rightful place and value, a view that will give dignity to life, a view that will carry us triumphantly through life.

A first aspect of this view is a right perspective in which every part of life falls into its proper place in its proper proportion. The parts must never assume the place of the whole. Every part of life should be seen in the spirit of the whole. In the midst of his agony Job had expressed severe judgements against his God. God convicts him of his limited outlook and makes him see the inscrutable mystery of the universe. Can Job properly appraise God’s government of the world? He is made to realize that man does not make the whole of God’s creation and that God’s care extends far beyond man’s interests. Job is thus led to a proper estimate of his place in God’s creation and to see that, if He is to judge God’s ways aright, he must transcend his self-centred attitude.

Job has a vision of God through the whirlwind which makes him deeply conscious of the greatness of His power. These were no arguments. Though it seems as if the whole experience was intended to force him into submission instead of convincing him by reason, it was only by this majestic impression that Job was to learn his true relation to God. It was no theoretical knowledge about God, but an experience of Him. ‘I had heard of thee by the hearing of the ear, but now mine eye seeth thee: wherefore I abhor myself and repent in dust and ashes.’ This experience brought trust in its wake, though there was no understanding (by reason) of God’s ways with him. The experience gave him peace and knowledge that all was well, though the details of Divine governance of the world he was not interested to know. He threw himself on God, conscious of his dependence on Him and of his own shortcomings and ignorance. He came to a knowledge of the

certainty of Divine goodness. God was not out to crush him, but to uphold him. There was a sudden inpouring of Divine wisdom. A closer knowledge of God humbled him.

Our visions are often fragmentary. We do not see the whole. We struggle and faint for we have not recognized His wisdom and goodness. Would that we could join with the prophet and say 'Lord, Thou hast wrought *all* our works for us!' Would that we acknowledged Him in *all* our works! Would that we did *all* things to the glory of God! It is an experience of this kind that can help us in our despair, a mystic recognition of God that the soul could reach. It is beautiful indeed to see as the Psalmist did 'Never saw I the righteous forsaken.' But how much more helpful are the words of Job, halting though they are: 'Though He slay me, yet will I trust in Him.'

While Job's acceptance and trust was the outcome of his vision of God's majesty and power we get further insight in other prophets and in Jesus Christ. It is that God is no idle spectator in the world's tragedy of pain and sorrow. But on the other hand, every time we suffer He shares the stab with us. Our trials are not our own. They are His too. The heart of the father suffered while the prodigal son was wasting away his life. When our experience of God is rich we may hear Him say: 'I grieve with you. Your sorrow is mine. I suffer it with you.' If God were foreign to our suffering and trials, we should look to Him in vain. He is ours and we are His. As He suffers with us, virtue goes out of him for our healing too if we will let Him work in us.

The idea of a suffering God does not in any sense lower His greatness and power. He suffers with us because of His love. It is born of love and is borne in love. The splendour of His greatness shines because of this willing, self-chosen burden. It is a conquering love.

As we turn to the New Testament we find no attempt at an explanation of the existence of pain and suffering. Nothing is said about this being the 'best of all possible worlds', as some have said this world to be. The world is not what it should be, and God suffers in the attempt to make it better. His suffering is a means by which we may overcome all evil and it has therefore a creative value. God leads us in the fight and we are called to share in the fight. The world, being what it is, we are called upon to strive, to agonize. Our life is meant for conflict and not for comfort. If Jesus is our ideal, we shall not have found ourselves until we have found something to suffer for.

Sufferings there are which tend to degrade humanity and to impede all progress. Even here much depends on our attitude toward them. 'The *natural* consequences of suffering can, by the spirit and manner in which it is borne, be not only avoided but actually reversed.' Paul took upon himself in this spirit the 'unpaid balance of the sufferings of Christ.' This to him was not a burden, but a privilege.

'The authentic sign and seal
Of Godship, that it even makes glad,
And more glad, until gladness blossoms, bursts
Into a rage to suffer for mankind,'—BROWNING,

Can we not here testify to the inspiration that comes to us when we see suffering cheerfully and heroically borne? It is not the pain that ennoble but the spirit in which it is borne. If we accept our suffering in the spirit of Jesus—that was what Job finally came to—we are filled with new strength and power. Our trials and sufferings give us opportunities to show of what stuff we are made. Even the 'worst of tragedies may be the means of an otherwise impossible triumph.' Thus our sufferings become the 'nurse of what is greatest in human character.' They are not clouding, but revealing. We gain through them new insights into the spiritual realm.

This attitude and consequent insight are possible only with a larger love and trust. 'Yea, though I walk through the valley of the shadow of death, I will fear no evil, for Thou art with me, Thy rod and Thy staff they comfort me.' The consciousness that someone understands us and feels our pain and suffers with us is the secret of one's strength. Such was the strength of Jesus. There was a moment of apparent despair. 'My God, my God why hast Thou forsaken me?' But there is an immediate self-possession. He threw himself into the arms of the Divine love. 'Into Thy hands, I commit my spirit.'

The story is told of a boy who had seen his brother's body broken in the war and who crept into his trench and drew a cross and a sunrise and wrote the words: 'God is love.'

Amidst the perplexities and pains of life, such an attitude is hard, but strength comes from 'looking unto Jesus, the author and finisher of our faith, who for the joy that was set before Him endured the Cross.' If we centre our thoughts and prayer around His suffering love, we can rise above our trials and suffering and find in them opportunities for a life of power and victory. Privileged and enviable is the soul which can truthfully say, 'Though He slay me, yet will I trust in Him.'

S. J. THEODORE

MADRAS

Editorial Notes

Humanism

The chief business of a college is the making of men. In the long run, its charter is not the gift of a Government but the approval of the community that it serves. Temptations come from time to time to make other interests supreme. There is the peril of becoming self-centred, developing for its own sake. And there is a lurking danger that education may become so scientific as to lay unwholesome emphasis on disinterestedness. 'Science for science' sake is one of those maxims that may easily become a fetish. Science is for life, as is also philosophy and art. There is a profoundly humanistic motive behind all sound education—'that ye may have life, and that ye may have it abundantly.'

There was a real significance behind the fifteenth century movement known as 'humanism.' It was a protest against the mediaeval emphasis on the formal and the authoritarian in education, and it expressed itself in a revival of classical education. Of course classical education itself is not immune from the perils of formalism. The present day trend away from the classics is itself partially prompted by the same spirit as introduced the classics, namely a spirit of humanism. Yet the pendulum is in no small danger of swinging too far in the opposite direction. It is the danger of stressing the minutiae of subjects at the expense of obtaining a broad humanitarian culture. It is often the custom to characterize the present age as one of specialization, and the specialist has a great service to perform, if he performs it in the name of humanity. The trouble begins from commencing to specialize too early in the educational process.

We need to be able to see the woods as well as the trees. We need the larger perspective of life as well as the knowledge of detailed problems and solutions. Our education ought to help us to look on life as a whole. It ought to enable us to integrate all of our interests and all of our values. It ought to make men first, and specialists afterwards. The task of the college is to press into the service of men all of the knowledge and all of the skill on which it can lay hold. The heart of its mission is humanistic.

The Andhra University

The career of the Andhra University, though short, has been somewhat chequered. The act of incorporation limited the number of centres, and located the headquarters of the University at Bezwada, at the same time definitely excluding Bezwada as a college centre. Then followed a period of rivalry among various towns for the location of the headquarters with the temporary victory on the side of Anantapur. That ambitious town is so much to one side of the Andhra desa that from the first the move was condemned by public opinion. It is difficult to say now what might have happened, if Bezwada had not been precluded from becoming a

university centre. But a great many educationists feel that a mistake was made in so enacting. There was a strong movement to amalgamate the Noble College of Masulipatam with the American Evangelical United Lutheran College at Guntur, and invite other missionary bodies to unite in the founding of a vigorous Christian College for the Andhra area at Bezwada. By the provisions of the act that movement received a decided check, though we hope not irrevocably. If the missionary societies concerned can put forward a well thought out plan for a strong united college, surely we may anticipate that the Legislative Council will be pleased to amend the act in such a way as to make it possible to establish it.

In the meantime the Government has decided to move the site for the headquarters from Anantapur to Vizagapatam. Though not quite to the same extent as Anantapur, Vizagapatam suffers from the disadvantage of being on one side of the Andhra country. Rival claimants have made much of this point. On the other hand its advantages are not forgotten. One is the possibility of securing generous financial support from monied interests in that area. Another is its salubrious climate. Further with the development of the great harbour scheme it is destined to be the centre of a great population, and may some day be a rival of Madras for supremacy on the east coast.

We wish the Andhra University in its new location well. It is to be hoped that the rival interests will stop their unhealthy bickering, and unite to get on with serious work. There ought to be a real advance made in the development of a teaching university. Whether the university will ultimately be of the unitary type or not, there should certainly be a strong college at the head-quarters, staffed by scholarly men who will stimulate university education of the highest order, and through that equip the educational and other institutions of the Andhra country with men of superior training and character.

Social Reform

There probably has never been a period in the world's history characterized more by social reform than to-day. The past few decades have witnessed a steady disintegration of old sanctions, and an uninterrupted tendency to change the social order. In some instances as Soviet Russia we see a concerted attempt to alter the whole basis of society, making it secular and communistic. In other cases the reform movement has been directed to some more particular issue, as in the Prohibition movement in America. Wherever we look, we find issues being sharply drawn, and men grouping themselves into the conservatives who support tradition and the liberals who demand reconstruction.

The reformation of society cannot be effected in a night. There is no use in expecting to set a new machinery of organization into motion, and to wake up the next morning with society reformed. A systematic campaign of education is necessary if public opinion is to be remoulded, and social reform that lacks the support of public opinion is doomed to disappointment. The question is often asked, Why has there been so much difficulty in enforcing prohibition in the United States? The answer is that it was introduced in the first place as a measure of

economy in war-time, before the public conscience had been sufficiently educated. Yet the sentiment is too strong to revert to the old state of affairs, and so interests clash and trouble results. A similar situation has emerged in Afghanistan. The king was thoroughly dissatisfied with the old social sanctions and convinced that he had found a better way. With practically nothing done to educate his people, he introduced social reform by legislation. There is no doubt that King Amanullah was on the side of progress, and that the ultimate victory rests with the principles for which he stands. Yet in the meantime these principles have suffered a check because the people were not ready. The eyes of the world are on Afghanistan, watching eagerly as the nation tries to work out its destiny.

Here in India there are great social reform movements in progress. The ties which have bound men together and yet bound them apart in caste groups are loosening. Men of vision and culture are everywhere acknowledging that caste must go. Others are recognizing that the status and privileges of the widowed woman need to be raised to a higher level. Still others are interesting themselves in the rights of girls. The movement to raise the age of consent is gathering strength, and must eventually succeed. The hands of the clock cannot be made to run in the reverse direction. All lovers of liberty and justice will rejoice in the steps taken by the Madras Legislative Council to ameliorate the condition of the devadasis. We live in a day that challenges us to moral courage and determination. Every one of these social problems is a moral problem, and a challenge to an intrepidity every whit as profound as any war-time demand. No great social advance was ever made without paying the price of progress in sacrifice and perseverance. Yet we believe that

'They are slaves who dare not be
In the right with two or three.'

What Men Think

Who Am I?

I am the foundation of all business.
I am the source of all prosperity.
I am the parent of genius.
I am the salt that gives life its savour.
I have laid the foundation of every fortune.
I can do more to advance youth than his own parents, be they ever so wealthy.
I must be loved before I can bestow my greatest blessings and achieve my greatest ends.
Loved, I make life sweet, purposeful and fruitful.
I am represented in the humblest savings, in the largest block of investments.
All progress springs from me.

I AM WORK

A Pilgrimage of Buddhism

Professor James Bissett Pratt, the well known author of *India and Its Faiths* and *The Religious Consciousness*, has recently completed a careful study of Buddhism. His particular contribution consists in discussing this great religion with special reference to its diversity of expressions in different lands and among different peoples. It is recognized by all students of religion that the social consciousness is an important factor in determining the cult aspects as well as the creedal expressions. The immense divergence observable among various races that profess the same faith is largely due to the fact that the felt needs of the groups vary and the rites and beliefs that satisfy vary. Social psychology is a valuable instrument for the interpretation of the data of religion. Professor Pratt comes to his study of Buddhism with the mind of a trained psychologist. His discussion is illuminated throughout by his use of the psychological method, and not the least conspicuously by his discussions of Buddhism in its various cultural settings.

The countries in which we are permitted to make the pilgrimage with the author include Ceylon and Burma, Siam, Cambodia, China, Korea and Japan. Other Buddhist lands to which he devotes very little attention are Tibet, Mongolia and Nepal. Burma, Ceylon, Siam and Cambodia are devoted to the Hinayana type of Buddhism, while the other Buddhist lands follow the Mahayana tradition. In the Hinayana period Gautama was thought of as a man, an enlightened man to be sure, and the great teacher. In all Buddhist lands to-day whichever tradition is followed, he is revered and worshipped. But the Mahayana conception of him is that he is a

Deity, and not only so, that he is the culmination of a long series of enlightened ones. Sometimes one encounters those who declare that Hinayana Buddhism is a philosophy only, while in the Mahayana period it developed into a religion. But that is to make a purely speculative distinction. Historically it is all one movement, and the Mahayana is by no means an illogical development of the earlier period. It is the overt expression of what is tacitly implied in the earlier phases of the movement. Probably Gautama would be horrified to find some of the developments that seem to be fairly polytheistic, but that his followers should have deified him is not at all surprising.

In each of the countries described we see the influence of the national characteristics on the development of the religion. In India, Hinduism has been a great absorbing influence with the result that Buddha became an avatar of Vishnu, and Buddhism swallowed up in Hinduism. In Burma and Ceylon, Buddhism has been preserved in its most pure form, though in Burma we are told the people take their religion rather more seriously. There are wider divergences in ecclesiastical architecture than there are in creed of custom so far as these two countries are concerned. Siam has the distinction of being the only state where Buddhism is the official religion, and the devotion of the Siamese Buddhists is striking. The excellent repair of most of the Siamese wats forms a pleasing contrast to the many Buddhist pagodas which are tumbling down through neglect; this is due to the fact that in the Siamese tradition the repair of an ancient temple is as important as the erection of a new one. In China, we find Buddhism adapted to the national ideal of filial piety, even to the extent of providing the people with ceremonials for the departed, a lack which was felt in Confucianism and Taoism. Chinese architecture and images are in striking contrast to other lands, combining the curious traditions of Chinese art with the Buddhist heritage from India. Buddhist monks in China are unhappily of low average intelligence, and proverbially lazy. Japanese Buddhism is distinctive in several ways. The poetic and artistic touch of the people is evident wherever one goes, and Buddhism has gained immensely thereby. While for many of the Chinese, religion is a thing apart, with little or no concern for mundane things the Japanese has seen the desirability of connecting his religion with practical living, so that Buddhism has adapted to its own use social organizations and types of social service such as one is accustomed to associate with western Christianity. The adoration of the Amida Buddha, the Buddha of boundless light, and Saviour of men is thoroughly characteristic of the Buddhism of Japan. Pratt tells us, that the most characteristic feature of Japanese Buddhism is its liberality and tolerance. Indeed it is a curious fact that a Japanese sees no incongruity in being a Buddhist, a Shintoist and perhaps a Christian at one and the same time. He apparently experiences no conflict of loyalties.

Synthetic Fertilizers

From the time that man first became an agriculturist till 1800—say half a million years—the population of the world increase to 800 millions, while from 1800 to 1900 it rose to 1730 millions. If this rate of increase continues, an early inter-

section of the population curve and the soil-productivity curve is to be expected. One of the chief factors in soil productivity is the amount of available nitrogen compounds, and as long ago as 1898 Sir William Crookes pointed out in his address to the British Association that the food supply of the world would soon become insufficient unless some method of producing nitrogenous compounds from atmospheric nitrogen were discovered and applied on a large scale. Three distinct methods of doing this have been discovered and are being made use of commercially. At the time of the outbreak of the war, most of the world's supply of nitrogen compounds still came from the saltpetre deposits in Chile. The conditions produced by the war showed the dangers of dependence for essential substances on over-seas supplies, and a sum of £5 million was granted by the British Government for the establishment of a factory for producing synthetic nitrogen compounds, chiefly with the view of making explosives. The factory was established at Billingham near Stockton-on-Tees, but owing to the difficulty of the task it was not completed in time to be of military value. Since the war, however, the scheme has been developed as one of the activities of Imperial Chemicals, Ltd., and the position in regard to the nitrogen problem has been revolutionized. This one factory alone is producing about 170,000 tons of fixed nitrogen annually. There are similar concerns in other European countries, in America and in Japan, and it is estimated that if the present programs are carried out there will actually be an over-production in the course of a few years.

Owing to the lack of cheap energy in England, the only suitable process is the Haber-Bosch Process. This requires great technical skill as it involves the use of high pressures and high temperatures. Air and steam are passed through incandescent coke which results in the production of a mixture of hydrogen, nitrogen, carbon monoxide and carbon dioxide. Carbon monoxide is removed by catalytic interaction with steam, and carbon dioxide by treatment with water under pressure. The remaining hydrogen and nitrogen in the volume proportion of three to one are then passed under high pressure over a catalyst consisting of pure iron with small quantities of alkalis and acid oxides heated to 500° C. The ammonia thus obtained is dissolved in water and combined with the carbon-dioxide previously separated. The resulting ammonium carbonate is then reacted with calcium sulphate which occurs in large quantities at Billingham. The products are ammonium sulphate, which is the chief form in which nitrogen is applied to the soil, and calcium carbonate. The latter substance is in a form suitable for making Portland cement and it is also largely used for mixing with ammonium nitrate to produce the new fertilizer known as 'nitrochalk.' If nitric acid is required, the ammonia is easily converted into this compound by Ostwald's method which consists in passing a mixture of ammonia and air over a platinum catalyst; nitric oxide is thus formed and this by interaction with air and water gives nitric acid. The experience gained with high pressure plant is being applied to other reactions such as the production of alcohols from water-gas, and much research is being carried out on other catalytic reactions under high pressures. The plentiful supply of cheap fertilizers is no doubt destined to have a profound effect on agriculture both in England and throughout the Empire. Experience in various parts of England has

shown that by the use of these artificial fertilizers productivity has increased so that instead of two acres only 0.72 acres is necessary to feed a cow, and the yield of potatoes may be increased as much as four-fold.

Solid Helium

At the beginning of this century helium was the only gas that had not been liquified. Dewar and Olszewski, who had previously liquified hydrogen, failed in their attempt with helium, and it was not till 1908 that Kamerlingh Onnes of Leyden succeeded. Helium boils at 4.2° Absolute or -269° C. Attempts were then made to solidify this liquid by evaporating it under reduced pressure. Although a temperature as low as 0.8° Abs. was attained the helium remained liquid. In 1926 Prof. Keesom succeeded in solidifying this element and recently he has given an account of some further work on the subject. He recognized that besides low temperature increased pressure was necessary. He therefore compressed helium in a metal tube surrounded by liquid helium boiling under reduced pressure. Solidification was shown by a differential manometer that indicated the blocking of the tube. When the experiment was made in a glass tube no surface of demarcation between either gas and liquid or liquid and solid could be seen and no change in volume was observed. The existence of the solid form was proved however by observing that the surface could be hammered by a piece of soft iron controlled by an external magnet. This remarkable result shows that under the conditions of the experiment (pressure about 90 atmospheres) the three states have almost identical refractive indices and densities. A series of experiments showed that the melting point of helium varies from 1.2° — 4.2° Abs. over a range of pressures between 25 and 140 atmospheres. The fusion curve thus obtained became nearly parallel to the temperature axis at its lower end and showed no tendency to meet the vapour-pressure curve. Unlike other substances therefore helium has no triple point (solid—liquid—gas). Other experiments carried out at Leyden had shown that the dielectric constant, the specific-heat, the heat of vaporization and other physical properties of liquid helium undergo a sudden change at 2.3° Abs. It appears therefore that there are two forms of liquid helium, Liquid Helium I being the stable form above 2.3° and Liquid Helium II at lower temperatures. The transformation curve between these two states is not yet known but it apparently cuts the vapour-pressure curve giving a triple point Liq. He I—Liq. He II—gas. Such a triple point is unknown with any other substance except certain complex organic bodies that give 'liquid crystals'. Possibly the transformation curve also cuts the fusion curve giving another triple point Liq. He I—Liq. He II—solid.

Giant Telescopes

The largest telescope at present in use is at Mount Wilson Observatory and it has a reflector 100 ins. in diameter. For the further investigation of many fundamental problems in astronomy, physics and chemistry more powerful telescopes are necessary, and there are at present two projects for building very large instruments. The most important is that of a joint committee of the Mount Wilson

Observatory, which is a branch of the Carnegie Institution of Washington, and the California Institute of Technology, with the co-operation of many of the most prominent engineers and physicists in America. An instrument with a 200 in. reflector has been designed and it is estimated that the cost will exceed a million pounds. The funds are being provided by the International Education Board of New York which administers some of the Rockefeller benefactions. In most of the largest telescopes it is difficult to prevent inaccuracies owing to the distortion of the reflector by unequal heating, and in the construction of the 200 in. instrument the avoidance of this source of error is one of the most difficult problems involved. It is proposed to make the reflector of fused quartz which has a very low coefficient of thermal expansion. Dr. Elihu Thomson has been experimenting on this subject and with the co-operation of the General Electric Company he is to undertake this part of the work. His method is to cast a disc of quartz full of fine air-bubbles and to fuse on a layer of very pure quartz free from bubbles which can then be ground to the proper dish-shaped figure. Such a mirror has the advantage of lightness and would be almost unaffected by temperature changes. The building of this telescope will take some years and it is not yet decided where it will be erected.

The other project is that of Professors Ritchey and Chretien. The former has constructed a working model of 20 in. aperture and 136 in. focal length at Paris for the purpose of testing out the principles of its construction. It is of the Cassegrain type with a large concave mirror with a hole in the centre and a convex reflector. The mirror is of a special form neither paraboloid nor hyperboloid. The field is spherical and it will therefore require either spherical photographic plates or a correcting lens. The telescope is fixed in a vertical position and is provided with a coelostat. The large mirror is to be made of hollow glass cells cemented together and cemented to a plate-glass shell the upper surface of which will be figured. Such a reflector has the advantage of great lightness as compared with a solid one and it can be kept at a uniform temperature by circulating air through the cells. It is thought possible to construct an instrument with an aperture of ten metres. It is proposed to erect it at Grand Canyon, Arizona.

Is Space Empty?

The old idea that space is empty is being steadily dissipated though the researches of astronomical physicists. Professor R. A. Millikan of the California Institute of Technology who discovered the presence of 'cosmic rays' has shown that their source is far outside our earth. He believes that they are produced by the union of electrons to form atoms of ordinary matter, and are hence actual 'messengers of creation.' In a paper recently read before the National Academy of Science Professor Millikan in collaboration with Mr. G. Harvey Cameron has shown that this creation takes place in interstellar space rather than in the stars themselves. What has been popularly understood as empty space is, if this view be correct, the seat of quite the most important process in the entire universe. The following extracts are quoted from the authors:

'If it may be regarded as established by the evidence hereafter advanced that

the cosmic rays are the signals sent out through the heavens of the creation of the common elements out of positive and negative electrons. The next important question to attempt to answer is 'where are these creative processes going on? To this question there are two different sorts of possible answers, as follows:

(1) In the stars where pressures, densities, and temperatures may, one or all, be enormously high, or else

(2) In interstellar space where pressures, densities and temperatures are all extraordinary low.

'In both of these localities matter exists under extreme and as yet unexplored conditions, and in view of the history of the last thirty years of physics, it would no longer be surprising if matter were again found to behave in some hitherto unknown and unexpected way as a new field of observation is entered.

'Of the two foregoing alternatives we think it possible to eliminate the first and to establish the second with considerable definiteness, and that for the two following reasons:

'*First.*—If the mere presence of matter in large quantities and at high temperatures favoured in any way the atom-building processes which give rise to the cosmic rays, then it is obviously to be expected that the sun, in view of its closeness, would send to the earth enormously more of them than could any other star. But the fact is that all observers are agreed that the change from midday to midnight does not influence at all the intensity of the cosmic rays. This can only mean that the conditions existing in and about the sun, and presumably also in and about other stars as well, are unfavourable to the atom-building processes which give rise to these rays.

'Since, however, the rays do come to us at all times, day and night, and, according to all observers, at least very nearly equally from all directions—according to some, as accurately as they have as yet been able to make the measurements—there is scarcely any escape from the conclusion that the atom-building processes giving rise to the cosmic rays are favored by the conditions existing in interstellar space. We may not only conclude quite definitely that the stars are not the sources of the cosmic rays, but also that the main atom-building processes probably do not take place inside of stars at all.

'*Second.*—The foregoing conclusions may also be arrived at from an entirely different mode of approach, namely, from our measurements of the cosmic rays. The hardest rays which we have observed are completely absorbed in going through 70 meters of water.

'This means that, even if the atom-building processes went on inside a star, the resulting cosmic radiations could not possibly get out, but would all be frittered away in heat before emergence, save in the case of those rays that originated in the star's very outermost skin.

'But we have also found that the total energy coming into the earth's atmosphere in the form of cosmic rays is about one-tenth the total heat and light energy coming to the earth from the stars, exclusive of the sun. This last fact means that if the cosmic rays have their origin within the stars they cannot, even

at the points of their origin, have an intensity more than ten times that which they have when they reach the earth's atmosphere.

'In other words, if the stars are the sources of the observed cosmic rays, no atom-building processes can be going on in their interiors.

'It is, however, so altogether absurd to suppose that atom building processes are going on actively at the surface of a star, and down to a depth of a hundred meters, and then suddenly stop there, that we are forced to the conclusion that the observed cosmic rays do not originate in the stars at all, but that they must originate under the extreme influences of exactly the opposite sort existing in interstellar space.'

These considerations, arising from two entirely new points of view, force the authors to conclude, they say, that the heat output of the stars must be derived from an entirely different source from the atom-building processes which produce the cosmic rays. They consequently believe that the process of energy emission by atom-building does not take place in the stars at all. To quote further:

'Eddington and Jeans have found the source of stellar heat not in an atom-building process, but rather in an atom-annihilating process which they assume to be going on in the interior of stars, positive electrons being thought to be continually transforming their entire mass into ether waves.

'That the atom-building processes responsible for the cosmic rays, as distinct from the atom-destroying process just considered, actually occur, as our experiments definitely show, outside the stars, at least where the rays produced by them can get to us, and in an energy that is of the same order of magnitude as that of the heat poured out by the star, is an extraordinarily illuminating fact. For it suggests at once the following incomplete cycle, each element in which now has the experimental credentials indicated in the brackets:

'(1) Positive and negative electrons exist in great abundance in interstellar space (see the evidence of the spectroscope).

'(2) These electrons condense into atoms under the influence of the conditions existing in outer space, viz., absence of temperature and high dispersion (see the evidence of the cosmic rays).

'(3) These atoms then aggregate under their gravitational forces into stars (see the evidence of the telescope).

'(4) In the interior of stars, under the influence of the enormous pressures, densities and temperatures existing there, an occasional positive electron, presumably in the nucleus of a heavy atom, falls into complete coincidence with a negative, i.e., transforms its entire mass into an ether pulse the energy of which, when frittered away in heat, maintains the temperature of the star and furnishes most of the supply of light and heat which it pours out (see the evidence of the lifetimes of the stars).

'The foregoing is as far as the experimental evidence enables us to go; but the recent discovery of the second element of the above unfinished cycle, namely, that the supply of positive and negative electrons is being used up continually in the creation of atoms, the signals of whose birth constitutes the cosmic rays, at

once raises imperiously the question as to why the process is still going on at all after the eons during which it has apparently been in process— or better, why the building stones of the atoms have not all been used up long ago. And the only possible answer seems to be to complete the cycle and to assume that these building stones are continually being replenished throughout the heavens by the condensation, with the aid of some as yet wholly unknown mechanism, of radiant heat into positive and negative electrons.'

On the other hand there are voices being raised in opposition to this doctrine. In his recent work on *The Nature of the Physical World* Professor A. S. Eddington expresses his disapproval of the view in the following paragraphs:

'Turning again to the other end of time, there is one school of thought that finds very repugnant the idea of a wearing out of the world. This school is attracted by various theories of rejuvenescence. Its mascot is the Phoenix. Stars grow cold and die out. May not two dead stars collide, and be turned by the energy of the shock into fiery vapour from which a new sun—with planets and life—is born? This theory, very prevalent in the last century, is no longer contemplated by astronomers. There is evidence that the present stars at any rate are products of one evolutionary process which swept across primordial matter and caused it to aggregate; they were not formed individually by haphazard collisions having no particular time connection with one another. But the Phoenix complex is still active. Matter we believe, is gradually destroyed and its energy set free in radiation. Is there no counter process by which radiation collects in space, evolves into electrons and protons, and begins star-building again? This is pure speculation and there is not much to be said on one side or the other as to its truth. But I would mildly criticise the mental outlook which *wishes* it to be true. However much we eliminate the minor extravagances of Nature, we do not by these theories stop the inexorable running-down of the world by loss of organization and increase of the random element. Whoever wishes for a universe which can continue indefinitely in activity must lead a crusade against the second law of thermodynamics; the possibility of the re-formation of matter from radiation is not crucial and we can await conclusions with some indifference.

At present we can see no way in which an attack on the second law of thermodynamics could possibly succeed, and I confess that personally I have no great desire that it should succeed in averting the final running-down of the universe' I am no Phoenix worshipper. This is a topic on which science is silent, and all that one can say is prejudice. But since prejudice in favour of a never-ending cycle of rebirth of matter and worlds is often vocal, I may perhaps give voice to the opposite prejudice. I would feel more content that the universe should accomplish some great scheme of evolution and, having achieved whatever may be achieved, lapse back into chaotic changelessness, than that its purpose should be banalized by continual repetition. I am an Evolutionist, not a Multiplicationist. It seems rather stupid to keep on doing the same thing over and over again.'

Book Reviews

THE CAMBRIDGE SHORTER BIBLE. Arranged by A. Nairne, T. R. Glover and Sir A. Quiller-Couch. Cambridge at the University Press, 1928. Pp. 891. 8s. 6d.

Some one has remarked that the actual Bible is a much shorter book than the printed book, because they only read the parts they like. For the historian of course the entire Bible has interest. But for the ordinary man who goes to it for spiritual nurture there is much that he finds of little concern. The present abridgement is meant to serve the practical needs of such people. The shortening is not done from the point of view of criticism either historical or textual. It is entirely from the point of view of practical religion.

The editors remind us that the books of the Bible fall into three main classes, some legislative, others narrative, and still others which embody more direct teaching in regard to the 'eternal aspects of man's relations with God.' Obviously it is the latter that are of deepest concern to the religious man. Of the narratives there is a good deal that is necessary to the understanding of the religious teaching, as forming the background. The editors have omitted however matter such as chronological tables and pedigrees with which the ordinary reader has little concern. They have also chosen to omit much from the juridical literature. The omissions from the Old Testament are much larger than those from the New. The Gospels and the Acts are unabridged.

Perhaps every person who reads the Shorter Bible with a critical mind will find passages included which he would have omitted, and will note omissions which he will regret. On the whole however it must be said that the editors have done their work well. They have performed a service to the Bible as literature without detriment to it as sacred scripture. The get-up of the book is good, and the price exceedingly moderate.

THE VEDANTA AND MODERN THOUGHT. By W. J. Urquhart, D.Litt. Oxford University Press, 1928. Pp. xvi+256. 12s. 6d.

The increasing interest in Indian philosophy is a very encouraging sign. The philosophical world welcomes every contribution that helps towards the understanding of a wide and difficult field of reflection. Indian philosophy is extensive and has taken many forms, and we have reached the stage when our most pressing need is for specialized studies in more restricted fields. The works of Max Müller, Deussen, Radhakrishnan and Das Gupta are exceedingly valuable in enabling the student to gain a perspective of the entire field. Such works will always be necessary, but they will be done all the better when we have had large and broad researches into specialized phases. Even the Vedantic philosophy itself represents a wide range of thinking, within which we shall look as time goes on for studies of a more intense nature along narrower lines. At the same time we must acknowledge

that the new Vice-Chancellor of the University of Calcutta has laid us under a heavy debt of gratitude for the contribution to the interpretation of the Vedanta that is before us.

In the present volume Dr. Urquhart's plan is first of all to outline the historical antecedents of the Vedantic theory in the Veda, the Upanishads, the Sutras and the Gita. On that basis he discusses the main lines of Vedantic development. He takes Sankara and Ramanuja, of course, as the two principal exponents of the Vedantic philosophy, the former being the more important of the two. On the whole he represents Sankara as being the more faithful of the two to the teachings of the Upanishads, whereas he finds Ramanuja a more reliable interpreter of the Sutras. In the delineation of the various doctrines the author takes Sankara's standpoint as his place of departure, and afterwards indicates the respects in which his doctrines were modified in the teachings of Ramanuja.

Students of Indian philosophy are familiar with the main tenets of Sankara's doctrine. He has been described appropriately as 'a rigorous monist.' He asserts that there is one reality, and only one, because there is no such thing as plurality or difference anywhere, and consequently no beginning and no ending, nothing indeed but the consciousness of the self which is intelligent, and yet universal. If we merge all things in our own consciousness, and merge our selves in the universal consciousness, we shall reach the goal of all striving. This involves the negation of the world, and that is no loss since there is really no world and no individuality, nothing but the all-pervading, eternal, infinite Reality, the fundamental self-luminous Being. The world of ordinary experience is phenomenal and is due to cosmic ignorance. This cosmic ignorance is combined with power to become the principle of illusion or *maya*. In association with the power of *maya*, Brahman or the Absolute becomes Isvara. The former is without qualities; the latter with qualities. The former is the Absolute of metaphysical idealism; the latter is the God of religion. Ramanuja disagreed with Sankara in the idea of a beginningless power of *maya*, as also in Sankara's distrust of human reason. He also refused to accept Sankara's idea that the qualityless Brahman is a higher conception than one with qualities; in fact he denied the dualism of a higher and a lower Brahman. He identified the God Vishnu with the Brahman of the Upanishads. Dr. Urquhart accounts for many of these distinctions between the two interpreters on the ground that Sankara followed more rigorously the Upanishads, and Ramanuja the Sutras.

Dr. Urquhart has given to us a very valuable discussion of the place of authority in the Vedanta, one which has value not only as an interpretation of this particular school, but also in the entire range of the philosophy of religion. Here we find Sankara's attitude towards the Scriptures far more submissive and less critical than that of Ramanuja. Sankara's position is that the goal of striving, viz., release can only be reached by perfect knowledge. But perfect knowledge since it deals with permanent things and wins universal acceptance cannot be dependent on human reasoning; hence ultimate authority must repose beyond human fallible reason. It reposes on the revealed scripture. In many cases, as Urquhart points out, the resort to authoritarian religion and ethics is the outcome of men's disgust with the

jarring noises of controversy and the desire to transcend confusion and contradiction. But Sankara goes farther, and makes his appeal to reason of a more positive character. Obviously if human reason is so fallible the authoritativeness of the texts cannot be an inference of reason. They speak with an authority which is inherent in themselves. It did not seem to occur to that great thinker that even such a conclusion was the conclusion of his fallible reason. Some critics have compared Sankara's method in this matter to that of the mediaeval scholastics, indicative of a dangerous distrust of human reason to give ultimate truth, while all the time using it to bolster up the position. It seems on the surface to amount to an abdication of one's private judgement in favour of instruction imparted by a guru. But such a criticism is hardly fair to Sankara. For him authority is not something externally imposed, but rather something which imperceptibly emerges from and gathers up into itself the whole spirit of the environment. The great thing is that it is the result of a determination to rescue thought from the perils of subjectivism. The seeker after truth is not dependent entirely on the inward workings of his own reflection. There is higher truth and truth surely must have the character of universality. Sankara's appeal to the scripture is thus not to an authority externally imposed and opposed to the philosophic spirit, but it is an appeal to an available and valuable aid for the attainment of ultimate wisdom.

Sankara makes a distinction between two orders of knowledge the one lower or exoteric and the other higher or esoteric. Unity is the one true existence the knowledge of which is equated with ultimate reality. Multiplicity is only appearance, and the cause of it is due to ignorance and illusion. The higher knowledge thus involves the identity of subject and object the authority for which he finds in the Upanishadic texts. There is of course an appeal here to the mystically minded who, moved by the homing instinct of the soul, seek for repose in that undivided unity and calm which is only to be found in union with God. The ordinary experiences of daily life are within the sphere of the lower knowledge and are characterized by vagueness and dulness. Sankara is unable to conceive of the possibility of co-operation between these two orders of knowledge. It is quite possible to criticize Sankara at this point. It is a high price to pay for the higher knowledge when it has to be bought by negating the knowledge of ordinary experience. Reality is reached not by turning away from experience, but by a fuller and more reverent study of the facts which experience discloses. On this matter of the two realms of knowledge our author contrasts Sankara with Immanuel Kant, and he makes the shrewd observation that whereas the latter after writing his *Critique of the Pure Reason* could still write a *Critique of the Practical Reason*, Sankara stopped with the discussion of the theoretical reason, though Urquhart thinks that there are hints that he would have been willing to accord a certain amount of validity to the practical reason as well. However Kant regarded the practical reason as giving to us the highest truth, whereas Sankara would only have accorded provisional value to such truth, Ramanuja protested against this epistemological dualism which he found in Sankara. He regarded it as virtually a combination of agnosticism and dogmatism, and insists that Sankara's followers need to make their choice between the two.

Ramanuja contended that the Scriptures do not teach that Brahman is devoid of qualities, but that their point is rather that of negating undesirable qualities in the Brahman. He pushes the conception of a qualitative Brahman back until it is identified with the ultimate Brahman. Thus he makes the religious way of knowing valid and reliable. Ramanuja insisted, and modern thought agrees with him, that we must use our knowledge processes in a normal way. In religion that means that we must regard God as Object. Sankara's identification of subject and object is most unsatisfactory as it flies in the face of all that we know of the knowledge processes. Why should a man's religion demand of him something abnormal and absurd? It tends to unreality and to confusion.

Dr. Urquhart has given a study of a very high order. He has studied these great Vedantic thinkers both critically and sympathetically. He probes to the heart of the problems even as a skilled physician probes to the heart of a disease. We venture that he has given an enduring contribution to a great theme.

A. S. W.

TELUGU LITERATURE. By P. Chenchiah and Raja M. Bhujanga Rao. Calcutta: Association Press, in The Heritage of India Series. 1928. Pp. viii+124.

In this series there have been already issued histories of Hindi, Sanskrit and Kanarese literature, and the present work covers the whole range of Telugu including in it activities even of to-day. Mr. Chenchiah, B.A., M.L., is an old boy of our College, and his present work amply testifies to the fact that the days of his College life are not without salutary after effects. Raja M. Bhujanga Rao is a prince and a poet, already well-known to the Telugu word by his many poetical works, including his beautiful metrical version of the New Testament. The present book contains thirteen chapters of which the first five are introductory. The division of some of the chapters under suggestive titles such as Women Poets, Christian and Muhammadan Poets and Popular Literature shows how carefully modern thought runs throughout the whole book. The historical background given to Telugu Literature is a special feature of this book. An appreciation of the best poetic thought of the country as shown in this volume is particularly to be noticed. The book however seems to be got up in great hurry as important phases of Telugu Literature such as the Śataka have not been noticed. A few inaccuracies of fact have also crept in, which we hope will be rectified in a second edition. Mangalagiri Ananda Kavi is for instance made the author of Ariraddha Charitra, while Kanuparti Abbanamātya is its real author. It is not historically true that Krishnaraya is the founder of the Vizianagar kingdom. To state that Nannaya developed his prosody from the stanzas of a later poet Vīmana cannot be tenable. The book however has the glory of being the first volume on this subject that appeared in English separately in book form, and this fact therefore has to be remembered in noticing any of its short-comings. We hope that a thorough revision will be made when another edition of this book is issued.

T. R. R.

WISDOM OF THE PROPHETS. (In the light of Tasawuff) by Khan Sahib Khaja Khan, B.A. Madras: The Hogarth Press, 1929. pp. xl + 202. Rs 2.

Mr. Khaja Khan has already placed us under obligation to him by his works dealing with the esoteric and mystical side of Islam. His *Studies in Tasawuff* and *Secret of Ana'l Haqq* have been reviewed in the Madras Christian College Magazine. The present work is described as 'a synoptical translation of Shayk Muhiyuddin ibn-i-Ali ul Arabi's famous book on Tasawuff—*Futuf-ul-Hikam* (Bezels of Wisdom)'. The book contains a brief foreword by M. Massignon of the Collège de France, additional notes on each Fas, and a biographical sketch of the saint.

The Sufi movement in Islam is known and understood in a general way by students of the history of religions. It is appreciated by the mystically minded in all religions, and is, we venture to say, the heart of the most spiritual teachings of Islam. But the major portion of Sufi writings are in Arabic, so that many are limited to secondary sources. It is for this reason that we welcome the work of our author in making available for English readers translations of the writings of the great Sufis.

THE VEDANTA ACCORDING TO SAMKARA AND RAMANUJA. By S. Radhakrishnan. London: George Allen and Unwin, 1928. Pp. 287. 10s.

This very useful volume is a reprint of those chapters dealing with the Vedantic philosophy in the second volume of Professor Radhakrishnan's *Indian Philosophy*. The larger volume appeared in 1927 and was reviewed in The Madras Christian College Magazine in January 1928, so that it is not necessary to do more than draw attention to this work. The Vedantic is far and away the most influential of the schools of Indian thought, so that it is not surprising that there should have been a demand for the separate publication of the chapters devoted to it.

Dr. Radhakrishnan has the gift of a facile pen, and has given us an eminently readable as well as erudite account of the systems of the two great Indian thinkers. Samkara was undoubtedly the greatest of India's metaphysicians. He had a gift for logical analysis and synthesis that places him in the front rank of the world's thinkers. Rāmānuja's pre-eminence was in the field of the philosophy of religion. The present account is without doubt one of the clearest in exposition available for the English reader. There will be many who are not prepared to go through the entire work, but will be grateful to the author and the publishers for making available the treatment of the Vedānta in a separate volume.

THE SIGNIFICANCE OF JESUS. By the Rev. Nicol Macnicol, M.A., D. LITT. The 'Things New and Old' Series. Madras: Christian Literature Society, 1929. As 12.

Perhaps a better title for this little book would have been 'The Name (or Names) of Jesus', for the author's purpose, in his own words (p. 6), is 'to find out what His (Jesus') value has been for men as that is indicated by the names they have called Him by, and what His own experience of His relation to God was as that is indicated by the names He Himself made use of.'

Thus Dr. Macnicol discusses first the names by which Jesus was called by

his fellows and followers. The name 'Jesus' itself, a Greek form of Joshua, means 'Jehovah is salvation'; this raises the question what salvation meant to Jew and Gentile in the days of Jesus. For ourselves the name should remind us of the human aspect of our Saviour; we should use it often, and whenever we use it we should be trying to learn something more about his mind and character. The name 'Christ' relates our Lord to the history of his people, and reminds us how in him all the 'promises' recorded in the Old Testament were fulfilled; he was the divinely-appointed deliverer whom the Jews had hoped for so passionately for so long, though he was not the kind of deliverer they were expecting. Then the disciples called him 'Lord' as well as Christ: they had to express their obedience to him, and their reverence for him, as well as their conception of his place in history. 'It is one thing to recognize . . . how that He was the fulfiller of the Jewish hope: it is another thing to deduce from that the right relationship of their lives to His' (p. 35). 'And thus the significance of this Man goes on growing. He is not only Jesus, the beloved, the Saviour, nor only Christ, the fulfilment of an ancient and undying Jewish hope, but he is the Lord. And to confess this of Jesus is to make the supreme discovery: it is to obtain salvation (Rom. x. 9)' (p. 42).

So far Dr. Macnicol has been following the line developed so impressively in the first three chapters of Dr. Anderson Scott's *Dominus Noster* (a book which ought to be far better known than it is), though he does not appear to be indebted to it. Dr. Scott goes on from this point to discuss fourthly the name of Saviour; but Dr. Macnicol, who has said something on this name already in his chapter on the name of Jesus, turns back, as it were, to consider the names which Jesus used of himself, 'The Son of Man' and 'The Son (of God)'. Both names are difficult—the first because of its complex history, the second because it leads us into the very depths of the mind of Christ. The position taken here is that Jesus called himself 'Son of Man' when he was thinking of himself as 'man typical and representative'; and as for the meaning of the second name of Jesus, it is 'in the implication of knowledge and of trust that breathe through His use of it . . . that its preciousness consists' (p. 61). 'Every one of us belongs to the eternal world as well as to this temporal one; but for Jesus that world is inalienably His home, its atmosphere His native air' (p. 62).

Dr. Macnicol now returns to some names by which Jesus' followers tried to express what they thought about him; St. John's names this time, 'the Logos', and 'the Lamb of God' or Redeemer. To call Jesus the Logos, the Word of God in human form, is to say that in him we see the very soul of the world, the principle and law of all life, made manifest. The desires and thoughts of all religious men, for instance, become intelligible and are justified only when they attain self-knowledge and satisfaction in the knowledge of Jesus. 'The reason of the universe, immanent in all things, is goodness, is love, and the key to the mystery of things is to be found by us in Christ Jesus' (p. 73). 'We have been—apart from this clue—as we may imagine the mole to be in the dark earth wondering and perplexed at why the seeds and roots grow upward in one direction

always. The mole does not know what light is. With the revelation of light comes the explanation' (p. 74).

In the consideration of Christ as Redeemer Dr. Macnicol comes to the most difficult part of his task. All who know Christ know to some degree, in the good old phrase, the 'benefits of Christ'—the rich, satisfying, and new life which is evoked by intimacy with the carpenter of Nazareth; but how are we to explain these benefits so as to make sense of all our knowledge? The argument of this chapter may be summed up in some words of Denney's which are quoted here (p. 90): 'The ultimate reality in this world of sinful men is a goodness in which God bears sin, in all the dreadful reality it has for men, and in so doing wins them to trust it, delivers them from sin, reconciles them to itself and makes them partakers in a divine and eternal life.'

A brief final chapter—a very beautiful one—is entitled 'The Name that is above every name.'

Our purpose in thus summarizing this little book of 100 pages is to commend it to everyone who desires to understand the significance of Jesus, and if the summary is at all representative the purpose will have been achieved. The book is written simply, clearly, and worthily. The printing and production are admirable and the price is wonderfully low. We have noted only one misprint—'blood-strained' (for stained) on p. 75.

BOOKS RECEIVED

THE WRITERS' AND ARTISTS' YEAR BOOKS. 1929. London: A. and C. Black. Pp. 250. 3s. 6d. A useful book of reference for the classes of persons for whom it is designed.

J. R. M.

Students' Section

The Little Great Things

Yon tiny star that peeps
And winks away from sight—
It may be now she steeps
In gold of morning light
Some greater worlds than our own world
That roll beyond our night.

Each prisms globe of spray
That leaps with languid pace
When sun-lit fountains play
And shatter on a dais;
Is it less wonderful than stars
That bloom and fade in space?

The little baby's eyes
Those mystic wells; with light
Mirrored from paradise
And rippled with delight;
Have deep beneath their innocence,
That dream of Infinite.

That tiny creeper shy
That twines round paddy plants
With blooms of violet dye
And down-cast girlish glance
Has something in its silk, profound
To cast a sage in trance.

Each speck of glittering dust
That swarms as sunbeams blow
Claims kinship with—I trust—
That fiery sun whose glow
Is lesser than this dust to us
In Eternity's flow.

T. BHASKARAN
Vth—Honour's Literature

An Old Officer

'Well master, get up, it must be long after sunrise,' cried the old servant, Rāma, to his old master, Mandanna, from his mat.

'Yes man, I feel wolfish, so it must be really late. But what on earth have we for the morning?'

'What have we? Why, everything. Everything we left after our meal, yester-night— cold rice, cold but fried fish and cold chatney yet hot because of plenty of chillies ground with it.'

This dilapidated building was not always what it is now. Once when Mandanna was the terror of the land this was a palatial mansion. Then his word was law! His children were princes and princesses in all the neighbouring villages. But these days were swept off by the broomstick of Time, as a fleecy cloud is carried away by a sweeping wind from the surface of a clear blue sky. But how did all this come to pass?

It is a long, long story—another story of a villain rising up the ladder by unbecoming and underhand ways and rudely kicking away the ladder, and tyrannizing those below him, till the Great Stage-Manager cries 'excunt' either to his life or as it is more often, to his pomp and power, and he is left a wreck of his former splendour. Once he was a big officer, under the British East India Company—a very big officer, for there was but one British officer superior to him, who was more often in Bangalore than not. Now one can imagine whether he could not be a virtual Raja in Coorg, if he only would, under the circumstances—and it was in Mandanna to be all, if he only could. So Mandanna was a Raja in all but name.

Our hero married his daughters to wealth. But he incurred no extraordinary expenses as his sons-in-law espoused their brides for no other advantage than to be in the best books of Mandanna. 'Mind, I am Mandanna's son-in-law.' These few words would legalize any illegal action, on the part of these rich young men. What else was expected in those dark days of old?

This gentleman, in his turn, sought the hands of the daughters of the then richest men, for his sons. It was a known fact for the parents of the brides, that it was only Mandanna's avarice that was the motive for this relation, for they were people who had no long pedigree to be proud of. To satisfy their new patron—for he patronized all those relatives of his who behaved as his subordinates—they sent with their daughters, their weight in gold in the shape of jewels or in cash. Year after year—for he had more than a dozen children—on a Sunday in the second week of May, there was a marriage in this officer's town house. Mandanna saw that no other marriage was celebrated in that week.

In other words, this was a *jamabandi* for all those who came under his influence. No one dared to question how one cloth-merchant could make up his mind to give five silk saris as a present, costing nothing less than Rs 200 each; or how one timber-contractor brought five-and-twenty friends from Malabar, and each gave ten sovereigns tied in a string, or even how some poor toddy-drawers could manage to give presents worth more than their month's earning. Our hero,

it appears, took care to write down the names of all those who awarded presents and the current value of the same.

Now we have had a glimpse of the justifiable ways of Mandanna's hoarding money, if not of his tyranny. What tyranny would not have been practised by a man who had such a great sense of honour and justice. This can be better imagined than described.

All the same everything disappeared—the tyrant and the tyrannized—as in this transient world everything passes off and nothing remains. When even the deeds of the great are deservedly enshrined only in the hearts of the good, what is the sad plight of the miserable, wealthy evil-doers? They too are not entirely forgotten, perhaps, because their names are cursed by the children and the grandchildren of the sufferers. Thus this Mandanna and all that is his has been wiped off or is too well remembered.

Our hero rising on his elbow, in his straw-bed cried, 'Rama, Rama, where the devil have you gone? Come and hear of a dream, come, come, run I say, otherwise the vision will vanish away.'

'Old goose, he raves,' said Rama, who was preparing a cup of an apology for coffee, for they had not heard of coffee-powder for months. Even this cup of hot and sweet jaggery water would be nectar to our old officer. But the servant was clever enough to know that two men could not subsist on the food at their disposal. So Rama wisely, thought that if he should feed his master well, he himself would first die of want. In that case, Mandanna, who did not even know how to light the hearth would follow suit and his body be left unburied to feed the wolves and vultures. On the other hand if Rama should keep strong at the expense of his master, he could at least give a decent burial to Mandanna, in case he should die first, by pushing on him the wrickety wall beside the cot. Good Readers, call you this selfish in Rama. No, I say no. Is there one among my many readers who is not yet a saint, and yet denies the truth of the maxim, 'I for myself, God for all'?

By this time, the old man was yelling for his servant, in the house but in a supplicating tone. After all Rama peeped in, 'Lo, friend, are you come, I feared that another old wall had tumbled on you as it did on my sweet girl of sixty the other day. After this our hero gasped for breath.

'Well master, why?' was his laconic question.'

'I have had a dream man, a terrible dream, a terrifying dream, a dream! a dream!!

'Yes, you had a dream,' replied Rama who was in a hurry to get back and drink the jaggery water, 'many of us have night mares and all night-mares are terrible.' Then the poor old man, stretched out his hand to catch hold of Rama, who was trying to get away, to tell him his dream. But in his attempt the poor old man slipped off the cot and knocked his head against the hard floor. At this juncture, Rama approached his master and helped him up the cot and then coaxingly asked him to recite his dream,

'Rama, hear me, I will speak the truth as I hope to die,' cried out Mandanna in a hurried and painful tone. 'Yester-night, God Almighty sat before me in His awe-stricken splendour on His bright Holy throne in His glorious court of justice with a glittering halo around His head and serene countenance. His body was so dazzling that I could make very little of it. To His right stood venerable rishies pious sanyasis and all other good and God-fearing people, with their hands folded on their breast and heads bent slightly towards Him. To His left stood ugly, wicked and fearful monsters of all sexes and ages striking terror into the hearts of the beholders.

He bade me stand in an elevated cage, which appeared much like a witness box, and that was placed at a distance in front of the throne.

In the space between us, which was vacant, a minute before, appeared a tiny, weak, new born child, wrapped in tattered clothing, as on a cinema screen. Little after a young and beautiful mother appeared beside, who was gasping for breath. On the other side knelt a stalwart young peasant, wailing, weeping and calling the dead lady to whisper a soothing word and breathe hope into his bereaved heart. In this young man I could recognize my old father.

Next my days of childhood appeared and in it were shown how tenderly and lovingly my poor parent reared me. He expressed, in that shadowy form, that he remained a life long widower, young as he was, to give me all comforts.

Then my schooldays were presented before my eyes. I was a very meek, humble and obedient boy. I was loved by my elders and teachers as I headed the list and carried away all the first prizes. But I was no sportsman, for my father loved me too well to let me go and play games like hockey, cricket and foot-ball. I loved my books and my enemies called me a bookworm, a mannerless boor and an unsocial wretch. I heeded not the remarks but bided my time.

Next, I was a young man when my father presented me before a big Company Officer who saw my worth in a week's time. In a short time I heard that my father was seriously ill. But I thought more of my future than of his. Next I heard that he was dead. All the same I minded my work as I would gain nothing by his burial.

Now, the death-scene of my father was pictured. It is heartrending to recapitulate it. O, Lord, I repent for my want of filial love! Save me from the pangs of Hell that surely awaits me. He starved to death with none to attend upon him. His remains were left unburied and dogs and damnable creatures fought over his body, while I, his wretched son, was working hard to attain the lap of luxury.

I was busy with my office work. I made it a custom to finish my office-work earlier and see my master in private once or twice a week. Gradually these visits increased in number and periods of interview lengthened. Every time I had to say something to my own advantage and to the ruin of my colleagues. Thus I slowly but steadily worked up the official ladder.

Sometime later, I married my master's daughter. Now I was next to my master, and found that he was a stumbling block in my progress, so I secretly but deliberately poisoned him. O, God, I tremble to think how you stared at me

with your ferret and fiery eyes when that vision appeared. Lord, I repent, though my crime is unpardonable, I know.

Thus I stepped into my father-in-law's shoes. But I had not reached the summit of my ambition. There were some more Indian officers superior to me. With a view to walk over these I took a month's leave and went to Bangalore and secretly had an interview with the British Officer. He asked me to wait for sometime and promised a transfer to Bangalore on condition I came along with my family. He was a bachelor! We became very friendly. Sometime after, when my officer and myself were discussing a bottle of whisky with soda, my peon came and told me that my wife has committed suicide. She had written these few words, in a number of bits of paper and had placed them in different places that at least one might be noticed by me. In the vision these words, "You led me in a wrong way, my conscience bids me die," were presented to me in letters of flame.

She left two children behind her—a girl and a boy. To save myself the trouble of rearing them I sent them to an orphanage, under a feigned name, and forgo all about them for good and all.

Soon after I was sent back as a head of affairs in Coorg. I was practically the ruler of Coorg. No ill wind could blow from Bangalore for I left no request of my superior unattended, good or bad, moral or immoral. Later, with some ulterior motive I married a beautiful and a wealthy widow who brought forth many children in my name.

I reached the summit! what I did to my Countrymen, I know, they know better, but He knows best of all. Lord, God, grant me one more chance to make up for my misdeeds. Lengthen my life a little, to repent for my sins. I poisoned my kith and kin. I teased the widows and cast off my own offsprings. I had some murdered, many more robbed, and many more dismissed for no fault of theirs. Lord, I breathe the last breath in repentance. Save me from that glowing hell fire, which is already dancing before me. God Almighty rescue me from that blood torture.

So saying, Mandanna passed away. Rama did as he had planned. He took away the two wooden props which were keeping the wall erect and the debris covered the remains of the once Raja of Coorg. The servant went out to the wide world, whistling a familiar tune.

NADIKNIANDA G. SUBBAYYA, III, 4.

Philosophy of Vedanta (according to Sankara)¹

Sankara constructs out of the materials of the Upanishads, two systems: (1) esoteric (called by him *nirguna vidya*) and (2) exoteric (*sarguna vidya*). The esoteric is for the select few who are able to understand it and the exoteric for the general public. These again are divided into four parts: (1) Theology, (2) Cosmology, (3) Psychology and (4) Eschatology which we shall take up in order.

¹ A paper read before the College Philosophical Society.

1. THEOLOGY OR THE DOCTRINE OF GOD

The *Upanishads* are full of imagery and contradictory descriptions of the nature of *Brahman*, e.g., he is the *purusha* in the sun, he is the *Īswara*, the personal god, etc. Sankara collected the numerous descriptions under the wide mantle of exoteric theology, the *sarguna vidya* of *Brahman*, comprising many *vidyās*, adapted for approaching the eternal being by way of worship. But this way of conceiving God as a personal being does not give us an adequate knowledge of the *Ātman*.

The doctrine of the esoteric or *nirguna vidya* is the absolute inaccessibility of God to human thoughts and words. Whatever attempts you make to know the *Ātman* and whatever descriptions you give it, I always say *nēti, nēti*, i.e., it is not that, it is not so. Still the *Ātman* is not far from us, for we have fully in ourselves as our metaphysical entity; and we may come to God by absorption into our own selves. A man, who feels himself as the sum and totality of all existence, has nothing more to desire.

2. COSMOLOGY OR THE DOCTRINE OF THE WORLD

The *Upanishads*, in various places, speak of the creation of the world by *Brahman* and again about 'the beginninglessness of the migration of the souls.' This seeming contradiction is explained by Sankara very cleverly. He says that the world is created and reabsorbed by *Brahman* periodically and that no creation can be allowed to be a first one or a last one. Then arises the question 'why did *Brahman* create the world?' The answer is that the never ceasing new creation of the world is a moral necessity connected with the doctrine of *samsāra*.

What is *samsāra*? Sankara says that man is born, grows up, lives and in the end dies but not totally. He leaves behind him his *karma*, the good and bad works of his life which have to be rewarded or punished in a next life. And hence there is no life which is the first one for it is the effect of the *karma* of a previous birth; and no life the last for its actions have to be rewarded or punished in a next birth; and the *samsāra* is a beginningless and endless cycle. But *samsāra* is not all the truth, but only truth in an allegorical form, adapted to our human understanding. This is the character of the exoteric *Vedanta* while the esoteric tries to find out the absolute truth.

The esoteric cosmology states that what we take to be a world is only illusion (*māyā*), and that one must be afraid of it only just as much as of a rope which we take for a serpent. Sankara also compares life to a long dream whose reality we do not doubt at the time, but which melts away at the moment of awakening. Then what may we expect to see on waking up, i.e., when we die? It is, says Sankara, *Brahman*, the eternal reality which was hidden to us till then. And the truth that the world is an illusion and not ultimate reality is reached only by turning our attention from the variegated world to the deep recesses of our own self.

3. PSYCHOLOGY OR THE DOCTRINE OF THE SOUL

The esoteric cosmology states that the world is illusion. The esoteric psychology says that there is one exception to this and that is my self or *Ātman*.

For he, who would deny it, even in denying it, witnesses its reality. But how is my soul, the *Jīva Ātma* related to the highest soul, the *Parama Ātma* or *Brahman*? Sankara shows that the *Jīva* cannot be a part of *Brahman* or a metamorphosis of *Brahman* or a different thing from *Brahman*, but is fully and totally *Brahman* himself, and it has all the qualities of *Brahman*. It is all pervading, eternal, and Almighty but these qualities are hidden in it and will become explicit only after the final deliverance.

Why should my godly qualities be concealed? The causes are the *upādhis* which are *manas*, *indriyās*, *prāna*, etc. These accompany the *Ātman* in all its ways of migration and hide its godly nature, but do not infect it. These *upādhis* form part of the great world illusion and are caused by our innate *avidya* or ignorance which has no prior cause.

4. ESCHATOLOGY OR THE DOCTRINE OF THE LAST THINGS, I.E., THE THINGS AFTER DEATH

The *Vedānta* speaks of a reward in heaven and punishment in hell, and also of rebirth. It speaks of three places: (1) for those who perform good works but who have to return to the world, (2) for those who worship the *saguna Brahman* who have no rebirth and (3) for those who are wicked and have to be punished and have to be reborn as lower animals and plants. Those of the second group have to remain in *saguna Brahman* until they get full knowledge of the *nirguna Brahman*. But these interpretations are only for those who are in *avidya* and not for those who have overcome it.

For them the whole world is illusion and the only real is the *Ātman*. They see the *Brahman* as the highest and lowest and although they work in this world, yet they know that the world is illusive. They lead the highest and purest moral life for they know themselves in everything and everything in themselves. They await death for it means to them no more *samsāra*. They then leave behind them *nāma* and *pāpa* and also what others call *karma*, but they do not leave behind them the *Ātman* or the self. In a word they attain *moksha*.

N S.



THE CAST OF 'RATNAVALI'—THE TAMIL DRAMA

College Notes

IT IS OUR DELIGHTFUL PRIVILEGE TO REFER, in every number of the Magazine, to distinctions achieved by one or another of the 'Old Boys' of the College. In this number we are glad to announce the appointment of two of the most brilliant of the old students of the College to high offices in Government service.

The choice of Mr. Alladi Krishnaswamy Aiyar as Advocate-General, Madras is a matter upon which the Local Government ought to be congratulated. Besides the fact that he is one of the most loyal and devoted of the old students of the College, he is, at present, almost unrivalled in Madras as an advocate on the civil side. As Advocate-General he is bound to give a good account of himself, and thus pave the way for higher responsibilities and greater honours which are sure to come his way at no distant date. We wish him every success in the new office upon which he has entered.

The Honorable Rao Badadur C. V. Anantha Krishna Aiyar, whose appointment to one of the permanent vacancies on the High Court Bench has given so much satisfaction, is another worthy alumnus of the College. His portrait appears elsewhere in this issue. Mr. Justice Anantha Krishna Aiyar was born in 1874 in a village in the Chittoor District, near Palghat. He received his high school education at Palghat and in 1890 stood first in the district at the Matriculation Examination of the University. He passed his First Examination in Arts from the Kerala Vidyasala, now the Zamorins' College, Calicut. In 1893 he joined the Madras Christian College and graduated in Arts in 1895. Two years later, he took his B. L. degree, standing first in the Presidency and winning the Innes and the Carmichael Prizes. He apprenticed under the late Justice P. R. Sundara Aiyar. From 1921 to 1923 he was Election Commissioner. In the latter year he was appointed Government Pleader and was made a Rao Bahadur in 1926. He acted as a Judge of the High Court from July to December 1927. On the 19th March 1928 he was appointed Advocate-General, and on the 7th January 1929 he was appointed as a permanent Judge of the High Court. We wish him a most brilliant career on the High Court Bench.

THE MADRAS CHRISTIAN COLLEGE DAY was celebrated on Monday, 31st December 1928. As usual the whole day was set apart for the celebration.

The College Day The proceedings began with chota hazri at 8 a. m. after which two papers were read. The first was an interesting paper on Flood Legends of the East by Prof.

A. S. Vaidyanatha Iyer, M.A., L.T. of Government College, Kumbakonam. Dr. K. C. Chakko, B.A., D. Sc., Professor of Civil Engineering in the Government Engineering College, Guindy read a suggestive paper on 'The Health of Madras.'

At 10 a. m. there was a conference of Old Boys, and at 12 noon a cosmopolitan breakfast, all present taking part in it. In the afternoon there was a variety entertainment in the College Hall, the tea at 4-30 p.m. bringing the first part of the programme to a close.

At 5-15 p.m. the public meeting was held in the Anderson Hall. Mr. J. P. Cotelingam, M.A., retired Principal, Wardlaw College, Bellary, occupied the chair. In his presidential address Mr. Cotelingam referred to his own College days bringing out the fact that the great traditions of the College were being maintained all through the years. But the great truths for which the College stood then, it is standing for even to-day. The chairman then proposed the toast of the King Emperor. He also moved votes of condolences to the families of the late Mr. V. Raghunatha Sastriar, B.A., B.L. and the late Mr. V. Venugopala Chetty, I.C.S. In an eloquent speech he proposed the toast of the College to which Professor S. J. Theodore responded.

Professor A. S. Vaidyanatha Iyer in an interesting speech proposed the toast of the retired professors and a letter from the Rev. Dr. Alexander was read in reply. The toast of 'Our young friends' was proposed in a feeling speech by Mr. V. Sivaprakasa Mudaliar, B.A., B.L. and Mr. K. M. Srikantha Reddy of the IVth Class made a suitable reply. Dr. V. K. John, Bar-at-Law proposed the toast 'Our Guests' which was responded to by Mr. G. F. Pappali, M.A., L.T. of the Ernakulam College. The proceedings were brought to a close with a vote of thanks proposed by Dewan Bahadur L. A. Govinda Raghava Aiyar, B.A., B.L.

THE COMMEMORATION SERVICE WHICH HAS BECOME AN ANNUAL FEATURE OF the life of the College was held at 12 noon on Friday 18th January. The Rev.

**The Commemoration
Service**

Dr. A. G. Hogg, Mr. T. Rajagopal Rao and the Rev. J. R. Macphail took part in the service, and the Dr. A. S. Woodburne delivered the annual address. The service was solemn and impressive, most of the members of the staff and a large number of students taking part in the corporate worship.

Dr. Woodburne in the course of a thoughtful and instructive address said "This is an occasion for expressing our gratitude for the legacy of good things left us by the founders of the College. The place which the College holds in the hearts of the old and the young it owes to the rich gifts poured into it in bygone days. Names like Miller, Skinner, Macphail and Meston have become household names in South India. The students of the College who have gone out and are holding responsible positions in this and other provinces are also pouring into the life and spirit of the College out of the abundance of their cultural gifts. We remember all these benefactors with gratitude.

Along with the great gifts, great traditions of which we boast, have also been handed down to us. Let us think for a little of this legacy of traditions left to us by those who have gone before us. Traditions have no intrinsic worth. Some of them are inspiring and helpful, while others are harmful and inimical to progress and culture. Their grip upon people sometimes strengthens, while at other times it strangles. The building up of a social sanction that becomes traditional may be

helpful; but at the same time, it must be admitted that those social practices which have acquired a halo of sanctity through tradition are most difficult to eradicate. Jesus found it necessary to reprove the Pharisees who put tradition before the will of God. This was a challenge to the people of his day to consider traditions for what they were worth.

In relation to traditions two attitudes of mind are possible. There are some who stick to traditions because they *are* traditions. To such the Telugu proverb which means 'Because my father dug the well, must I drown myself in it?' may be pointed out. There are others who condemn every practice that belonged to the past. It is well for them to remember that no tradition is to be rejected because it is a tradition. The need is neither to accept nor to reject traditions uncritically, but to enrich the good, and abandon the bad ones.

I. Our College holds to a noble and progressive tradition in regard to education itself, viz., to look upon it as a reciprocal undertaking characterized by a spirit of give and take. The student who takes all but does not give is bound, sooner or later, to die of mental indigestion. The teacher who has not awakened to the fact that his students have something to give him is a somnambulist. He is walking in his sleep. Here in the College we try to keep ourselves awake and alive to our mutual obligations and opportunities. Life unfolds in the measure that it reciprocates with other unfolding lives. It is one of life's strange paradoxes that the more we give, the more we have left. The College holds that service is the very heart of culture, that the really educated man will want to share the wealth he has received whenever he sees a brother in need whom it is in his power to help.

"The Holy supper is kept, indeed,
In what so we share with another's need;
Not what we give, but what we share,
For the gift without the giver is bare;
Who gives himself with his alms feeds three
Himself, his hungering neighbour and me." (LOWRELL)

II. Students are of higher value than classes, lectures and examinations. Examinations, however, have a value for they give students an opportunity of showing what they have been able to master. Examinations ought to be treated as a part of the business of life. Life itself is a class-room where we learn to serve one another. Every time we hate, when we ought to love, or hinder, when we should help, we fail in the estimation of the great Teacher. Education is life and living is education.

III. Students and teachers are engaged together in the search for truth. "Truth at all costs" is the goal of our endeavour. We are not afraid that the truth of the laboratory is going to upset the truth of the chapel. We recognize religion and science as co-operative enterprises, each bringing its contribution of truth for the enrichment of life. The noblest of all the traditions of the Madras Christian College is that religion is as integral to education as science or philosophy, literature

or art. The man who neglects religion is oblivious to one of the main avenues through which truth comes. After all, the greatest truth that has dawned on the human mind, thus far, is the fact of God and no man can call himself really educated who does not know Him

"The Truth is in the Universe
In earth and sea, in sky and air,
In man and beast and holy Book.
The Truth is everywhere
For God is Truth".

Devote yourself unreservedly to truth, and you will surely not only enrich the great traditions of the College but you will attain India's great ideal of a *bhakta*.'

THE ANNUAL COLLEGE ATHLETIC SPORTS were held on the Caithness grounds on Friday, 18th January 1928 at 3 p.m. The ground was laid out and tastefully decorated. The Senatus was at home to the members of the staff, their families and the students who competed in the sports. Mr. S. J. Theodore who was in charge of the arrangements deserves special mention and hearty congratulations.

The Sports' programme consisted of fifteen items including one set apart for the tennis pickers and another for the College peons. The programme was carried out without a hitch and in the quickest manner possible, thanks to the kindly assistance given by Mr. H. C. Buck who was starter and referee.

The names of the winners and the records, wherever possible, are given below.

- I 120 Yards Hurdles
 - 1. Walter Eling ... 19 $\frac{2}{3}$ seconds
 - 2. C. Chandy
- II 100 Yards Flat Race
 - 1. Walter Eling ... 11 seconds
 - 2. N. S. Vickers
 - 3. C. Chandy
- III Putting the Shot
 - 1. C. Chandy ... 29 feet 4 inches
 - 2. Walter Eling
 - 3. G. Paul David
- IV 220 Yards Flat Race
 - 1. Walter Eling ... 25 seconds
 - 2. C. Chandy
 - 3. B. S. Kesava Rao
- V High Jump
 - 1. Walter Eling ... 4 feet 11 inches
 - 2. C. Chandy
 - 3. M. R. Gallyot

- VI Sack Race
 - 1. V. P. Madhavan Nambiyar
 - 2. S. V. Lakshmanan
- VII Long Jump
 - 1. C. Chandy ... 18 feet 6 inches
 - 2. N. S. Vickers
 - 3. Walter Eling
- VIII 440 Yards Race
 - 1. Walter Eling ... 57 seconds
 - 2. C. Chandy
 - 3. K. Kuruvilla Jacob
- IX Tennis Pickers' Race
 - 1. Munnuswamy
 - 2. Sokie
 - 3. Balan
- X College Peons' Race
 - 1. Thulasi
 - 2. Arokiaswamy
 - 3. Palayam
- XI One Mile Race
 - 1. C. Chandy ... 5 minutes 24 seconds
 - 2. K. Jonathan
 - 3. C. E. Varkey
- XII Relay Race
 - 1. Class II
 - 2. Hons. Classes
- XIII Tug of War
 - Hons. Classes
- XIV Fancy Dress
 - 1. Alavandar Chetty ... (Salvation Army Lady)
 - 2. Sunderesan ... (Man with the Monkey)
 - Championship { C. Chandy } equal
 { Walter Eling }

Mrs. Hogg very kindly distributed the prizes. Mr. Theodore thanked her and all those who had helped in the afternoons' function.

TWO MEETINGS OF THIS SOCIETY WERE HELD IN THE THIRD TERM. At the first meeting Mr. V. Ganapathy of the Second Class read a paper on 'The place of Science in Education.' Messrs. T. G. Narayanan, A. Krishnaswamy and S. Sebastian also spoke on the subject. The chair was occupied by Mr. L. A. Poore.

At the next meeting Mr. K. Kurien, an Old Boy of the College, who is officially connected with the League of Nations, spoke on 'The Purpose of the League.' Mr. F. E. Corley presided on the occasion.

A MEETING OF THE ASSOCIATION WAS HELD ON THE 8th FEBRUARY with Dr. A. S. Woodburne in the chair, when Mr. N. Srinivasan read a thoughtful and interesting paper on 'The Vedanta Philosophy.' In the discussion which followed Messrs. P. Narayana Reddi, K. Thyagarajan, V. K. Eradi, A. Chandrasekharan and W. Adisheshiah took part. A summary of Mr. Srinivasan's paper appears in the Students' Section of this number.

THE MEMBERS OF THIS SOCIETY PUT ON BOARDS 'RATNAVALI' in the College Hall on Friday, 8th February at 6 p.m. The performance was in aid of the Cooper Fund for poor boys. Rao Bahadur P. Sambandam Mudaliar, the well-known author of the play, some of the members of the staff and many students were present. The entertainment was a success both from the financial and from the histrionic points of view. Of the actors who took part special mention may be made of Messrs. S. Venkataraman, V. Ganapathy, S. V. Rangaswamy, R. S. Govindarajan and P. K. Doraiswamy. The success of the performance was largely due to Mr. R. V. Narayanaswamy Iyer, M.A., I.T., the conductor. A photograph of the cast is reproduced elsewhere in the Magazine.

TWO MEETINGS OF THIS SOCIETY ARE REPORTED. The first was held on 18th January when Mr. K. S. Ramu moved and Mr. S. Tyagarajan seconded the resolution 'Examinations as a test of merit are not necessary.' The amendment was moved by Mr. S. Subramanian and seconded by Mr. S. Narayanan. Mr. S. Vijayaraghavan presided. After a lively discussion the motion was voted upon and declared lost, 19 voting for and 28 against.

At the next meeting Mr. R. Venkata Rao moved the resolution 'Foreign propaganda will accelerate Indian Self-Government.' This was seconded by Mr. Kamalavishnu. Mr. M. S. Srinivasan moved the amendment which was seconded by Mr. R. Rajagopalan. Mr. S. Subramanian occupied the chair.

THE MEMBERS OF THE STUDENTS' HOME CELEBRATED THEIR HOSTEL DAY on Saturday, 9th February. Besides the members of the College staff, some of the old members of the Hostel were also present. The first part of the programme was an enjoyable tea. This over, the hosts and guests assembled on the hostel terrace for the Annual Meeting, the Rev. Dr. A. G. Hogg presiding. The first item of the programme was a fancy dress competition. After this Mr. S. Srinivasan recited a prayer. Mr. A. Ganapathy Rao then read a few letters from the friends of the hostel of which one was from Dr. Meston. He sent his hearty good wishes for the prosperity of the Home and of each of its members, and exhorted them to benefit

by the common life, with its implications of unity and self-restraint, which they were living in the Home, so that they might go out into the world as messengers, in deed and not merely in word, of a united community and a united country.

The chairman then proposed the toast of His Majesty the King-Emperor and Mr. A. Krishnamoorthy proposed the toast of the College. He referred to the gratitude that the students felt for all that was done for their good by the College. The Rev. A. J. Boyd responded to the toast of the College in a short humorous speech. The toast of the Hostel was proposed by Mr. Ganapathy Rao. He recalled the manifold services that the late Dr. Miller had rendered to generations of students of this province by the establishment of hostels as adjuncts to the College. This toast was responded to by Mr. T. N. Krishnaswamy Iyer, Lecturer in Physics, Queen Mary's College and an old member of the hostel. He took his hearers back to the days when he was a member of the hostel and referred to what he and his friends owed to the hostel. Dr. Hogg in bringing the proceedings to a close said he had seen most of the hostels attached to the Colleges in South India, but he had not met with elsewhere a finer, healthier or freer social life than he found in the hostels attached to the Madras Christian College. He asked the members to retain the co-operative spirit of the hostel and maintain its great traditions.

ON WEDNESDAY, 13TH FEBRUARY THE MEMBERS OF THE COLLEGE PARK HOSTEL celebrated their 'Day.' As usual the proceedings began with sports at 3 p.m. followed by an excellent tea. The general meeting was held under the familiar margosa tree which became musically inclined in the course of the evening. The chair was occupied by Principal Chinnathamby Pillay of Pachaiyappa's College. The programme was short but quite delightful. It began with two popular English songs rendered well. The annual report presented by the Secretary, Mr. Kuruvilla Jacob, was a record of all-round improvement and steady growth. It had a kindly word for the neighbourly charity of the new neighbours, Mr. and Mrs. Matthews of whom the latter especially was making herself very helpful to the members of the hostel.

The two accordion experts of the hostel, who were roundly applauded for music which they did not produce, deserve mention. The hostel Bulletin which Mr. Chandy presented was a dignified commentary upon the idiosyncrasies of College Park heroes. For the first time in history it was told that the Taj Mahal was in Calcutta and the Adyar near Mount Road. The honour of making these discoveries belongs to College Park alone. Torch-swinging by Devanayagam, a solo by Mr. Sebastian, and the jungle dance were enjoyable items.

After Mrs. Hogg had kindly distributed the prizes won at the afternoon sports, Principal Chinnathamby Pillay brought the proceedings to a close with a short speech in which he complimented the hostel on its excellent display of wit and talent and paid a glowing tribute to the Madras Christian College, of which he was once a student and later a member of the staff, for the splendid work it was doing, especially through its hostels, which, as far as he was aware, were unrivalled by any other hostels in the Presidency.

THE MEMBERS OF THE SECOND STUDENTS' HOME celebrated the **Hostel Day** on Saturday, 16th February. Most of the members of the College Staff and some of the old members of the hostel attended the function. Before the annual meeting, tea and light refreshments were served. At the meeting the chair was taken by the Hon'ble Mr. V. Ramadas Pantulu Garu, B.A., B.L., Member of the Council of State. The proceedings commenced with prayer followed by some recitations and a fancy-dress competition. These over, Mr. K. Narasimha Raghavan, the Secretary of the hostel, proposed the toast of the hostel. In doing so he referred to the increasing evidence of *esprit de corps* in the life of the hostel and paid a tribute to the memory of the late Dr. Miller, the founder of the hostel. Mr. E. J. Bingle, the Superintendent of the hostel, replied to the toast. Mr. T. R. Venkatachari, who proposed the toast of the College regretted the absence on furlough of Dr. Meston, who had, for over a third of a century, rendered most valuable service to the cause of the youth of this Province. He expressed the gratitude of the students for all that they were getting from the College. Dr. Hogg in responding to the toast reminded the members of the hostel of the duty they owed to the hostel and the College—the duty of maintaining and enriching the noble traditions of both hostel and College.

The Hon'ble Mr. Ramadas in his interesting speech drew the attention of the members of the hostel to the great need of service. He asked them to remember that what they gained in hostel and college was to be expended in the service of the country. He emphasized the value of the study of the vernaculars and the need for rural reconstruction.

THE MEMBERS OF THE FENN HOSTEL WERE 'AT HOME' to the professors of the College at 4-30 p.m. on Thursday, 28th February. First a group photograph was taken. This was followed by tea and light refreshments. At the meeting, which took place later, Dr. Hogg presided. The Hostel choir was responsible for two good items of music which were appreciated. The toast of the professors was proposed by Mr. A. D. Vedamani. He very humorously referred to some of the striking characteristics of the professors. Mr. J. R. Macphail responded to the toast in a short and interesting speech. Dr. Hogg thanked the members of the hostel for the enjoyable evening and wished them all good luck.

THE ANNUAL DINNER WHICH THE COLLEGE STAFF gives to all the hostels attached to the College, took place this year on 22nd February on the terrace of College House. Almost all the members of the six hostels, most of the members of the staff and the wives of some of them were present.

For about half an hour before the dinner there was something of the nature of a Kalakshepam, Mr. L. N. Subramaniam leading it. The dinner was an enjoyable one. Its success was largely due to the efforts of Messrs. Srinivasan, Joshua, Barnes, Rajasekaran and L. N. Subramanian.