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THE HYDERABAD ACADEMY

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FOREWORD

Hyderabad is probably the only centre of learning in India where one could notice so free an interplay of cultures different in their inspirations—the Hindu, typical of the ancient East, the English, of the West, and the Muslim culture standing between. This peculiarity is the result of a combination of circumstances mostly historical; for, the traditions of the great Moghal Empire still persist to live in Hyderabad and form the background to the cultural activity resulting from the association of England with the ruling dynasty of Hyderabad. The development is marked by the presence among us here of a number of first grade institutions of culture and learning, oriental and occidental, literary and scientific, all engaged in the common pursuit of knowledge. Indeed it may perhaps be difficult to find any other place in the East where there are so many young men with European degrees and diplomas as in our 20th century Hyderabad, combining the good that there is in the cultures of the East and the West.

The Hyderabad Academy has come into existence primarily through the efforts of these young men, although the idea was working in the minds of the older scholars for a long time, and aims at providing a common venue for the learned men of Hyderabad to meet and discuss their contributions to knowledge, irrespective of their vocation, class or creed, whether holding University appointments, or belonging to any of the learned professions of law, medicine, or engineering, or quietly pursuing a life of research for its own sake. It is fortunate in having on its Board of Publication scholars enjoying wide reputation in their respective spheres of learning, and in securing for it a chairman of ripe experience—Prof. Mohd. Abdur Rahman Khan—who for long was associated with the life of the Osmania University as Principal of the University College, and as President of its Board of Research.

The present volume constitutes the first number of the Academy's studies and represents but a few months' labour of some of its members. Further volumes will follow as time proceeds.

The Academy has the honour of enjoying the patronage of Their Highnesses the Prince and Princess of Berar under whose æges, the Academy looks forward to a career of some little service to the advancement of knowledge in the Dominions of His Exalted Highness the Nizam of Hyderabad.

S. A. LATIF,
Vice-President,
The Hyderabad Academy.

20th December 1939.

THE ZODIACAL LIGHT

BY

Mohd. A. R. Khan, F.R.A.S.

IN clear weather and moonless nights, soon after the evening twilight, even the most casual observer in the Tropics cannot fail to notice an elongated cone or pyramid of diffuse white light, rising from the western horizon, the centre of its base marking the position of sunset, its axis coinciding roughly with the course of the ecliptic and its apex reaching generally to 50° or 60° from the base—occasionally even beyond 90° . The light decreases in intensity with increased elongation from the sun as well as with increased angular distance from the axis.

Early risers often observe a corresponding apparition in the east before the twilight of day-dawn. European travellers in the Tropical regions have on occasions been impressed by the intensity of the evening Zodiacal light so much that they have pronounced it to be as bright and imposing as the Milky Way in Sagittarius or Cygnus. No wonder that Alexander Von Humboldt, during his South American travels, describes it as a 'Second Sunset' (*vide* Cosmos, Vol. 1, p. 127, Bohn's Scientific Library, London 1849).

It is a significant fact that in the writings of old Arab Theologians there is a definite reference to Şubhe Kadhib (صبح كاذب) or false morning as distinguished from and preceding Şubhe Şadiq (صبح صادق) or true morning. One can safely assert that the 'false morning' of these writers is no other than the eastern apparition of the Zodiacal light. Had Humboldt been aware of this expression in the Arabic language, I am sure he would not have indulged in the remark : "It is difficult to understand how so striking a natural phenomenon should have failed to attract the attention of physicists and astronomers until the middle of the Seventeenth Century and how it could have escaped the observation of the Arabian natural philosophers in ancient Bactria, on the Euphrates and the South of Spain" (*Ibid.*, Vol. 1, p. 127).

As matters stand, he attributes the earliest explicit reference to the Zodiacal light in Europe, to Childrey, who was Chaplain to Lord Henry Somerset and described the phenomenon in Britannia Baconica (1661. p. 183), after—it is surmised—having possibly observed it two or three years earlier. But on p. 129 he refers to

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an account concerning a pyramid of light rising from the horizon in the east and seen for forty nights consecutively in 1509 on the elevated plains of Mexico (described in an ancient Aztec Ms., The Codex Telleriano—Remensis), which he conjectures with much probability to be an early record of the Zodiacal light in the annals of an indigenous American people.

Humboldt further adds that Dominicus Cassini was the first scientist to account for the origin of the Zodiacal light in 1683, on the assumption that it emanated from a detached revolving nebulous ring round the sun—a conjecture countenanced later by Schubert, Laplace and Poisson (*Ibid.*, Vol. 2, pp. 712-713).

In his endless quest of cosmic curiosities, Humboldt was able to observe many a fascinating phenomenon of nature and record its minutest details. His description of the Zodiacal light is so accurate and so much in advance of his times that I feel tempted to quote the following passages from his *Cosmos* :—" I have occasionally been astonished in the tropical climates of South America *to observe the variable intensity of the Zodiacal light* When the Zodiacal light had been most intense, I have observed that it would be perceptibly weakened for a few minutes until it again suddenly shone forth in full brilliancy. In some few instances I have thought that I could perceive—not exactly a reddish coloration, nor the lower portion darkened in an arc-like form, nor even a scintillation as Mairan affirmed, he has observed—but a kind of flickering and wavering of the light. *Must we suppose that changes are actually in progress in the nebulous ring?* Or is it not more probable, that although I could not, by my meteorological instruments, detect any change of heat or moisture near the ground, and small stars of the fifth and sixth magnitudes appeared to shine with equally undiminished intensity of light, processes of condensation may be going on in the uppermost strata of the air, by means of which the transparency, or rather the reflection of light, may be modified in some peculiar and unknown manner? " (Vol. 1, pp. 131, 132).

" Upon the whole, the brightness of the Zodiacal light did not appear to me to increase at all perceptibly with the *elevation* of the point whence it was seen, but much rather to depend *principally* upon the interior variability of the phenomenon itself—upon the greater or less intensity of the light-giving process " (Vol. IV, p. 563).

It is not clear on what grounds Humboldt persists in regarding the source of the Zodiacal light as a nebulous ring encircling the sun. Sir John Herschel also takes objection to this view (*vide* footnote to § 897 of his *Outlines of Astronomy*). In

respect of the matter responsible for the Zodiacal light, Herschel writes in the same section "It may be conjectured to be no other than the denser portion of that medium, which we have reason to believe, resists the motion of comets, loaded perhaps with the actual materials of the tails of millions of these bodies, of which they have been stripped in their successive perihelion passages."

One of the most diligent observers of the Zodiacal light, of all times, was the Rev. George Jones whose observations from 1853, April 2, to 1855, April 22, were published in "United States Japan Expedition" Vol. iii, 4°, Washington, 1856, with 357 plates of its appearance. Although he attributed to the phenomenon a terrestrial origin, his work is so rich in details that it has been fully made use of by later writers like W. F. Denning, The Rev. R. B. Bousfield and C. Hoffmeister. A section of the British Astronomical Association under a director deals with the investigation of the Zodiacal light. Interesting observations are published from time to time in *Popular Astronomy* (Northfield, Minnesota, U. S. A.).

We propose here to give a brief review of these accounts and of the hypotheses and theories put forward by various investigators concerning the origin of the phenomenon. Some of our own personal observations conducted recently at Begumpet will be recorded at the end, to supplement the work of observers in higher northern and rather low southern latitudes, at present available. Hardly any observational work on this subject was ever done in India previously. It is hoped that the publication of this paper will induce men of Science in our country to interest themselves in the subject and to try to contribute something to frame a consistent theory of its origin.

W. F. Denning (*Hutchinson's Splendour of the Heavens*, pp. 178-186) is led by the large number of asteroids so far discovered, (about 1250 in all), to postulate the existence of a considerably larger number of tiny planetary objects, gravitating round the sun in orbits of comparatively small inclination to the ecliptic. These, with myriads of undetected comets of short periods and "the majority of meteor streams which do not move in orbits that are greatly inclined" give rise to diffused reflection of sunlight which manifests itself to us as the Zodiacal light. Its direction, he holds, is no other than the general plane of these inner asteroids, comets and meteor streams; and the sun is thus surrounded by an elongated lens-shaped nebula.

He further remarks that the Zodiacal light has sometimes been seen better in somewhat hazy atmosphere, and alludes to Fasel's observation that the light was better defined in a November

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evening at Clapham than in a more favourable atmosphere in Switzerland. His own observation at Bristol, on the morning of December 3 and 4, 1916, is cited, when the light appeared unusually bright in spite of the unfavourable condition of the weather.

Denning also refers to the variable intensity of the Zodiacal light as seen from one and the same place, not only at different dates separated by long intervals of months and years, but also in the course of a few minutes in the same morning or evening; suggesting that part at least of the observed variability may be due to some inherent changes in the composition or character of our atmosphere. He states on the authority of Lowe that "at Nottingham in February 1850, the light was more brilliant on one night than it had been for the previous seven years, showing pulsations of greater or less brilliancy in periods of 30 seconds, so variable as to be almost extinct at times."

Regarding such reports of rapid changes in the intensity of the light, Denning holds that they are not due to "temporary changes in the (Zodiacal) ring itself, *but are mere visionary sensations*, due to the extreme tenuity of the light which is hovering on the border of visibility and non-visibility."

Russell, Dugan and Stewart remark (in *Astronomy*, Ginn and Co., Boston, 1927) that midnight observations of the Zodiacal light reveal it to extend 45° north of the sun, so presumably it extends 45° south of it also. It is found to be very conspicuous at 30° or 40° from the sun; and many observers believe it to be even brighter near the sun, if it be seen freed from twilight effects. As a matter of fact, several observations are on record which go to prove that the Zodiacal light does extend right up to the sun, as may be gathered from the following statements in *Nature* No. 682, Vol. 140, Oct. 16, 1937, concerning the total Solar eclipse of June 19, 1936, by Mr. Honda at Hokkaido, and No. 3559, Vol. 141, January 15, 1938, pp. 121-122, concerning S. P. Langley and Simon Newcomb's observations in the Solar eclipse of July 29, 1878.

Mr. Honda's observations imply that the Zodiacal light increases very much in intensity, the nearer it is to the sun. In the latter paper, Charles H. Smiley (Ladd Observatory, Brown University, Providence, R. I.) draws attention to a passage in *The New Astronomy* by Langley, where, referring to the older eclipse, he says "The most extraordinary thing was a beam of light inclined at 45° , about as wide as the Sun, and extending to the distance of nearly six diameters on one side and over twelve on the other Substantially the same observa-

tion was made, as appears, later by Prof. Newcomb at a lower level” Smiley himself recorded a similar phenomenon photographically at the eclipse of June 8, 1937, from Callon, Peru, in the Cordillera Negra, 14000 feet above sea-level.

In very clear weather, especially in places of small latitude, the extremities of the Zodiacal light have been found by various observers to extend almost completely round the ecliptic. This girdle from one side of the horizon to the other is known as the *Zodiacal Band*. Its intensity diminishes continually with increased elongation from the sun and is minimum at 135° on either side of it. Towards the anthelion (just opposite the sun) the band becomes brighter forming the *Gegenschein* or *Counter-glow*—an elliptic patch about 15° to 20° in average diameter.

E. A. Fath was probably the first investigator to obtain a spectrogram of the Zodiacal light and to find it identical with that of sunlight. It was also found to be partially polarized, showing reflection from small particles. Van Rhyn at Mt. Wilson found the Zodiacal light to extend faintly over the whole heavens. He attributes 60 p. c. of the night sky light to the Zodiacal light and a further 15 p. c. of it to a faint permanent aurora in the earth's atmosphere.

Later observers with more refined methods, using photo-electric photometers, have found the colour of the Zodiacal light to vary somewhat at different nights, but the mean colour to be nearly the same as that of the sun, whereby—for want of Rayleigh scattering—it is concluded that the material particles responsible for the Zodiacal light are fairly large. (*Vide* C. T. Elvey, *Astrophys. J.* 80, pp. 61-63, July 1934 and C. T. Elvey and P. Rudnick, *Ibid.*, 86, pp. 342-344, Oct. 1937).

The Zodiacal Band

The Zodiacal band is seen in a more diaphanous atmosphere and possibly under better conditions of excitability of the matter surrounding the sun. It seems to have been definitely noticed by later investigators in their systematic study of the Zodiacal light, though one is inclined to think that what Humboldt means by “a faint reflection visible in the east on March 16,” when the evening Zodiacal light was most strongly luminous, (*Cosmos*, Vol. 1, p. 127, Voyage from Lima to the Western Coast of Mexico) is probably the eastern portion of the Zodiacal band or arch that he saw under exceptionally favourable meteorological conditions.

In the *M. N. R. A. S.* (Vol. 94, 9, 1934 Supp.) is published an account of a most interesting series of observations on the

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Zodiacal band, made by R. B. Bousfield at Stanthorpe, Queensland (3000 ft. above sea-level, lat. $28^{\circ} 40'$ S., long. $151^{\circ} 55'. 5$ E.) from April 1931 to September 1933. At first he seems to have confined his activities to recording the shape and boundaries of the morning and evening Zodiacal cones, as they appeared separately at their respective times, and was struck by their orderly succession of phases repeated year after year.

While watching the morning cone in the east he noticed on several occasions a puzzling glow in the west. Its true significance dawned on him on the morning of July 15, 1931, when at 5 a.m. (Standard Eastern Australian Time) he opened the roof of his ice-covered dome and saw that there were two truncated cones, one in the east and the other in the west, resembling 'flying buttresses for a vaster arch, flung almost overhead' and some 32 to 34 degrees wide. "The eastern buttress was the brighter; it faded to what appeared to be between a quarter and an eighth of its brilliancy at the Zenith, but two-thirds of the way to the western horizon, the light strengthened again, the western buttress for its lowest 25° being about half as bright as the eastern one. Beyond the well-defined boundaries of white light there could be seen an outer shell of a few degrees north and south of a coppery hue." This was his first apparition of the Zodiacal band—a spectacle, which, he says, impressed him as abidingly as the darkness and solar corona of the Australian Total Eclipse of 1922.

Among many interesting details about the waxing of one cone simultaneously with the waning of the opposite one, in the course of the same morning or evening, he records the following curious phenomena which he saw repeatedly at Stanthorpe :—
(a) The western horizon begins to rebrighten between 2 and 3 a.m., attaining a high intensity at about $3\frac{1}{2}$ hours before sunrise, the east still remaining much less bright. But at about an hour and a half later, the eastern cone begins to rise in intensity and the western cone gets dimmer, "and the east now outmatches the west till day-dawn". These facts Bousfield verified by measurement with a lumeter also. (b) This relates to the building of the Zodiacal arch in the comparatively early mornings of February, before one's own eyes in a few hours. "The evening apparition tails ever farther and farther eastwards till the Zenith is passed near midnight. Finally, between 2 a.m. and 2-30 a.m. *the east leaps up to meet it and the great bridge is complete.*"

These fascinating manifestations of the Zodiacal band probably involve a number of factors, such as change of slope of the ecliptic, meteorological conditions of the atmosphere and

night sky light. A systematic study of the subject will doubtless disclose a number of important allied facts.

Influenced by a suggestion of George Jones (*loc cit*) concerning a lunar effect on the Zodiacal light, Bousfield made a number of observations to see if such an effect really existed, but found no clear indication of it.

An important feature of Bousfield's observations is the fluctuation of the Zodiacal band about the circle of the ecliptic. In Appendix II of the same paper he has recorded the limits of the band thus observed and charted.

He also took great care to test the objectivity of the undulations or pulsations of the Zodiacal light, at short intervals, in the course of the same morning or evening, reported by a number of competent observers but attributed by Denning to eye-strain. After watching the pulsations of the Zodiacal light without straining his eye-sight, Bousfield directed it to a portion of the Milky Way, comparable to the region of the Zodiacal light in extent and luminosity, but did not notice the slightest fluctuation in its brightness, although he tried even to strain the optic nerve. On redirecting his gaze to the Zodiacal cone he perceived again the same undulatory character of the light—wave after wave of luminosity, so to say, sweeping up from base to apex at short intervals.

The Gegenschein or Counter-glow

This is a much rarer phenomenon. It is much fainter than the Zodiacal light, and for this reason, can be seen only when the anthelion happens to be in a dark region of the sky. It further requires a much purer atmosphere, free from dust and moisture, and, above all, absence of artificial light in the neighbourhood of the observing station.

According to Denning, it has been observed diffused over the region of Pisces in September and October, and in cancer near the end of January. There is a *drawing* of it by W. H. Steavenson (on p. 206 of Hutchinson's *Splendour of the Heavens*), as seen at Ashford on February 5, 1916, and another in Bousfield's paper above referred to (on p. 834), as seen at Stanthorpe, on October 9^d. 21^h, 1931. One evening, when the Zodiacal band was invisible, he was able to chart the gegenschein from visual observations, with limits closely corresponding to those found at Yerkes. "The brightest patch was close to the anthelion at R.A. 12^h 56^m and $\delta = +6^\circ$, but the surrounding weaker patch was eccentric, being elongated in the direction of increasing R.A., or towards the meridian. This may have been

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due to atmospheric reasons or to the variation of absorption with altitude."

More recent apparitions of this difficult phenomenon are recorded in various issues of *Popular Astronomy* by Franklin W. Smith of Scott Avenue, Glenolden, Pennsylvania, as may be gathered from the following notes:—

(a) "Gegenschein, seen on March 8, 1935, at 11.00 E.S.T., was within the eastern part of Leo, roughly bounded by α , σ and ν Leonis and α and β Virginis. It was elliptical in shape with major axis extending along the ecliptic, of about 15° , and minor axis of about 10° ."

(b) "On September 30, 1935, at 11.00 E.S.T., the gegenschein was seen in Central Pisces. It appeared as a diffused area, bounded roughly by δ and 41 Piscium and by 20 ceti."

Theories of the Origin of the Zodiacal Light

It has been explained by various investigators that the light is due to reflection of sunlight from dust clouds—possibly a remnant of the original whirling nebula surrounding the sun and extending over the whole inner region of the solar system up to the orbit of Mars. H. V. Seeliger put the hypothesis on a scientific basis in 1900, assuming the dust cloud to be of the form of a flat ellipsoid and of density continually diminishing with increasing elongation from the sun. To prevent such particles from falling into the sun through its gravitational pull, it was found necessary to give them an orbital motion like that of the planets.

Considerations of the effect of radiation pressure from the sun require these particles to be fairly large. Absence of Rayleigh scattering in the Zodiacal light noticed by later observers—as already pointed out—proves that such actually is the case. Thus the original nebula surrounding the sun has, in the course of astronomical time, assumed the form of the rings of Saturn, their particles having dimensions of the order of several wave-lengths of light, and separated from one another by distances several miles in length. As remarked by Sir Joseph Larmor (*Nature* Vol. 141, No. 3561, p. 201, January 29, 1938), how such a state of affairs obtains would be a tempting subject for a mathematical physicist to tackle.

Gegenschein is usually explained as due conjointly to the reflection of sunlight from the particles situated at the anthelion occurring at full phase (like that of the full moon—Searle)—hence their greater brightness—and to a concentration of these particles through the combined attraction of the earth and the

sun near a point situated on the line passing through these bodies, about a million miles outside the earth's orbit (Moulton).

Some physicists persist in advocating a terrestrial (meteorological) origin to the Zodiacal light and the gegenschein, c. f. F. Schmid (Gerlands Beiter Z. Geophys, 45, 1—2, pp. 5—34, 1935), based on meteorological observations made during two research journeys and spread over latitudes 47° N. to 37° S. But the actual distribution of the intensity of the Zodiacal light, as found from careful measurements, especially in the neighbourhood of the gegenschein, apart from the want of a considerable parallax, negative all such terrestrial hypotheses.

Even astronomical theories so far advanced do not quite conform to all the facts of observation. Aiming at a better conformation C. Hoffmeister, after a voyage in the Tropical Atlantic and the Caribbean Sea in 1930, has put forward a modified astronomical theory (abstract published in Pop. Astr. Vol. XLII, No. 8, Oct. 1934). We give here a brief outline of it.

Assuming the brightness of a point on the axis of the Zodiacal light to depend on (a) the distribution of masses along the radius vector in the plane of symmetry and (b) the 'phase' of the particles giving rise to diffused reflected light with respect to that direction, an integral formula is obtained to express the brightness in terms of two hypothetical functions: one, the density function involved in (a), and the other, the phase function which appears in (b). As both the functions cannot be computed independently from observational data, advantage is taken of the fact that for small elongations the brightness depends almost exclusively on the density function, and for large elongations on the phase function; and thus an approximate solution is effected.

It was further found that no modification of the ellipsoidal shape proposed by Seeliger for the Zodiacal matter could explain the observed band of light at elongations between 100° and 160° ; hence Hoffmeister assumed a ring of material particles round the sun involving the earth's orbit near its outer edge, with a maximum of density near the orbit of Venus and an outer ring beyond the orbit of Mars—the space between the two rings being also filled with dust but of a much lower density. Variation of density in both the rings was taken to be of the same order; and the greater intensity of the morning and evening cones of the Zodiacal light as compared with that of the gegenschein was accounted for by the smaller distance of the inner ring from the sun and by the approximately tangential

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disposition of the line of sight to the inner part and approximately radial to the outer part.

To safeguard the real effects from being masked by atmospheric extinction, only low latitude observations were taken into account. Hoffmeister thus arrived at the conclusion that the reflecting matter responsible for the gegenschein is situated in the plane of the orbit of Jupiter—in agreement, more or less, with A. Searle's results based on Douglas' observations at Arequipa.

Investigations with regard to the inner ring proved more difficult owing to our position inside this ring (though not generally in the plane of symmetry). Based on theoretical considerations certain distinguished points, called 'Photometrische Hauptpunkte' were postulated in the plane of symmetry of the Zodiacal light. All these points belonging to different elongations lie in a closed curve of the fourth degree, each point making a revolution in one year like the earth, but in the plane of symmetry of the Zodiacal light, so that its orbit can be described by its ascending node and inclination like that of a planet.

Hoffmeister calculated some seven such points and deduced that they represented as a whole a flat of symmetry and their graphical representation led to the theorem:

"The flat of symmetry of the Zodiacal light is not a plane. Its form and situation are determined by the orbits of the major planets."

The localisation of the inner Zodiacal ring suggested that it was related to the system of minor planets; hence the possibility of the Zodiacal light and the gegenschein arising from the diffusely reflected light of a number of minor planets, small and not yet identified.

Concluding Remarks

It will thus be seen that the Zodiacal light is best explained as due to reflection of sunlight from gravitating matter confined mainly within two rings surrounding the sun: the inner one extending roughly beyond the Earth's orbit, but its densest regions lying near the orbit of Venus; and the outer ring extending outwards from the orbit of Mars. Matter in both the rings may well be conceived of as originating from disintegrated tiny asteroids not yet completely dispersed.

Whatever the ultimate fate of the individual particles constituting these rings—either to be sucked into the body of the sun by gravitational attraction, if of a sufficiently large size; or

expelled into the confines of the solar system by radiation pressure, if comparable with the wave-length of light—the cycle of events continues and the Zodiacal light and the gegenschein have remained a characteristic feature of the solar system from time immemorial.

Photometric measurements of the light carried out throughout the year, especially at places of low latitude on either side of the equator and in different longitudes, will provide more comprehensive data for checking the validity of the above theory and placing it on a firmer basis.

Evidence is not wanting of the effect of meteoric showers on the brightness of the Zodiacal light during the later winter months, when a seasonal influx of meteoric matter most probably activates the regions immediately surrounding the sun. (*Vide* C. T. Elvey and F. E. Roach, *Astrophys. J.*, 85, pp. 213-241, April 1937).

The rhythmic fluctuations in the intensity of the light at short intervals, in the course of the same morning or evening, often reported by competent observers, may possibly be explained on the same theory of bombardment of Zodiacal matter by meteoric particles arriving from interstellar space.

Yet more refined methods of spectroscopy applied to the study of the Zodiacal light and the gegenschein may solve some of the problems here envisaged.

*Record of Visual Observations of the Zodiacal Light
made by the Author at Begumpet, Deccan, during 1939.*

- (1) January 18, 2-30—3-30 A.M.

Morning cone conspicuous in Libra and tailing off to β Virginis.

- (2) January 19, 7-20 P.M.

Evening cone seen past Pegasus up as high as β Arietis; brightest near Jupiter.

- (3) January 20,

Morning cone, feeble owing to haze.

- (4) April 10, 8 P.M.

Evening cone, brightest south of η Tauri, apex extending up to ν Tauri, north boundary better defined than southern.

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(5) May 10, 8 P.M.

Evening cone,

North boundary.
 β Tau
somewhat north of ϵ Gem
 $\dot{\imath}$ Gem

South boundary.

ζ Tau
 γ Gem
 ζ Gem
 δ Gem inside the light.

Vague continuation along the ecliptic terminating in the apex at γ Cnc, on the north side of the Ecliptic.

(6) May 12, 7-45 P.M.

Evening cone, apex near δ Cnc, to the north of the ecliptic.

(7) May 14, 8 to 8-30 P.M.

Evening Cone, apex at α Leo, ribbon-like extension from δ Cnc.

North boundary.

α Aur
 θ Aur
 θ Gem
 β Gem

South boundary.

α Ori
 ζ Gem
 λ Gem

Axis of cone almost coincident with the Ecliptic.

(8) May 16, 8 to 8-40 P.M. Sky clear.

Evening cone, apex right up to α Leo.

North boundary.

β Gem
 θ Gem
 θ Aur

South boundary

λ Gem
 ξ Gem

(9) May 28, at 4-20 A.M.

Morning cone, apex at 41 Psc towards north of Ecliptic.

(10) June 8, Past 9-30 P.M.

Evening cone, brightest in Gemini, round Castor and Pollux; Slanting extended right upto σ Leonis. The Ecliptic marked the southern boundary of the cone. The northern boundary including μ , δ and β Leonis. Sky clear.

The Zodiacal Light

(11) June 9, 8-30 P.M.

Apex extending only up to α Leonis. Sky clear but windy weather.

(12) June 15, at 3-45 A.M. Moonrise.

Morning cone, apex near δ Piscium. Moon 25 days old.

(13) June 19, at 3 A.M. Sky clear.

Morning cone, wide base, Light brightest in Aries, apex above ϵ Piscium.

(14) June 20, at 4-15 A.M. till 4-30 A.M.

Morning cone. Sky clear but thin cover of haze as indicated by meteor train extinction. The Zodiacal light itself looked 'vapoury'.

North boundary.

South boundary

Base betn. ζ and ξ Per

λ Tau

41 Ari

μ Cet

α Ari

ξ 'Cet

η Psc

Saturn just inside

ζ Psc.

Same configuration and brightness as on 21st June.

MODERN TENDENCIES IN MATHEMATICS

BY

M. Raziuddin Siddiqi

THE pure mathematics known in the 16th century consisted of Arithmetic, Algebra and Geometry developed by the Babylonians, Egyptians, Chinese, Greeks, Indians and Arabs. Of these three subjects, geometry was the one developed and perfected to the utmost capacity. For about two thousand years it was believed that not a word could be added to the geometry of the Greeks. Even the great Arab mathematicians had to resort to geometrical constructions for obtaining the solution of their algebraic problems.

But, in its very perfection Euclidian geometry had become stale and dead.

The modern movement in mathematics began with the publication of analytical geometry by Descartes in 1637. It revolutionised the subject of geometry by bringing it under the domain of the powerful algebraic analysis. It is one of the very few greatest contributions of all times to mathematics. Essentially, it consists in the correlation of geometrical properties to arithmetical numbers and algebraic equations. We shall see presently that a fresh revolution was caused by the arithmetisation not only of geometry but of the whole of mathematics.

The second stage in modern mathematics set in with the discovery of the calculus by Newton and Leibnitz in the last quarter of the 17th century. This gave an impetus not only to mathematics proper, but also to its application to the explanation of natural phenomena. Newton's Principia, giving the law of universal gravitation and the laws of dynamics and of the planetary motions, was the first and foremost contribution of the new spirit in mathematics. The work of Newton and Leibnitz was carried on all through the 18th century along the lines laid down by these masters. The leading workers in this age were the Bernoullis, Euler, Lagrange, and Laplace.

Now the progress of the mathematical sciences during all these ages was mainly in the constructive direction, *i.e.*, in the direction in which we start from conceptions most familiar to us either through natural instinct or constant usage, and then advance in a synthetic way towards gradually increasing complexity. Thus, from an original conception of the natural

numbers, that is of the positive integers, we advance towards the idea of fractions, then towards that of negative numbers, and still further towards the irrational, and finally towards the complex and hyper-complex numbers. Similarly, we see that the simple idea of a pair of things has been developed into the arithmetical processes of addition, multiplication, extraction of roots and so on to the highly elaborate processes of differentiation and integration. Not only in arithmetic and algebra, but in all other branches of mathematics, the same process of gradual evolution can be observed. In geometry we start from points and lines and proceed gradually to discover highly complex properties of figures in planes and space. In physics we start with the familiar notions of matter and energy and build up the whole theoretical structure of mathematical physics.

But with Gauss, the greatest mathematician of all times, mathematics got divided into two main disciplines, the constructive and the introspective. The constructive movement in mathematics continues with unabated vigour, giving rise to the phenomenal development during the 19th and the 20th centuries. This extraordinary contribution to mathematics which establishes the unrivalled supremacy of our era to all the previous ages as regards the quantity of the work put forth as well as the quality of the achievement, is due to the intellectual, political and social liberation of humanity, brought about by the incessant struggles culminating in the French Revolution. The intellectual slavery to the Greek thought and particularly to Aristotle, gave place to the modern spirit of doubt and enquiry leading to new channels and inexhaustible sources of knowledge. The political freedom, resulting in the democratisation of all the social institutions, made the sciences accessible to the common man. Hitherto, research work was the monopoly of the Academies and Learned Societies, catering exclusively for their members whose number was always very small, and who were not concerned with the dissemination of the knowledge they had acquired. With the advent of democracy, the centre of gravity shifted to the Universities and Colleges. The number of scholars and scientists increased rapidly, and their individual and collective labours reaped a rich harvest. This work of investigation was stimulated by the development in printing, publication and the means of communication resulting in the production of a number of books and scientific journals unheard of before.

The cooperation of the various nations in producing Encyclopaedias and in holding international conferences, further accelerated the movement, with the result that the work in

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mathematics done during the last 150 years both as regards its extent and its content, exceeds the work done in the whole previous history of the human race. In the constructive direction alone so much has been done that the bare enumeration of a few of its leading points would require more space than at my disposal. Not only an immense advance was made in the direction already indicated, but entirely new branches of mathematics were created, such as projective geometry and functions of complex variables in the pure, and mathematical physics in the applied domains.

Sometimes the development in mathematics went hand in hand with the progress of the natural sciences. New methods of attack were developed in order to solve the problems set by these sciences. The most famous example of this kind is the Fourier analysis developed in connection with the theory of Heat Conduction. The recent development in the theories of differential and integral equations owes its origin mainly to the occurrence of such equations in mathematical physics.

At other times the trend of events has been in the opposite direction. Many subjects in mathematics were developed purely for their own sake, by generalising previous concepts. At the time of their creation they were considered to be so abstract as to be of no earthly use for any applications. But as our knowledge of the world advances, even the most abstract branches of mathematics are being found to be indispensable for the explanation of the processes of nature. We have gradually seen the functions of complex variables, the differential and integral equations, tensors, quaternions, matrices and groups become powerful tools in the hands of the physicist.

Mathematics is thus becoming more and more indispensable for all other branches of knowledge. The formulation of all the fundamental laws of nature requires its use. The eminent physicist Dirac has recently expressed the characteristic view that "Mathematics is the tool specially suited for dealing with abstract concepts of any kind, and there is no limit to its power in this field. For this reason a book on the new physics, if not purely descriptive of experimental work must be essentially mathematical". Having conquered the domain of the natural sciences, mathematics continues in its triumphal march into the realms of the biological and the sociological sciences.

Another characteristic development of the modern times is the rise of the deductive method in applied mathematics. Instead of advancing from particular cases to the general, as done in the Inductive or historical method which prevailed upto the 19th century, mathematicians now sought for the most general and

comprehensive law from which particular consequences could be deduced as necessity arose. Thus in mechanics instead of beginning with Newton's laws and then generalising them to Lagranges' and Hamilton's equations, mathematicians began to write down Hamilton's Variation Principle at the head of mechanics, and deduced Newton's laws from it. Similarly, instead of building up electrodynamics inductively with the help of Coulomb's, Gauss's, Ohm's, Joule's, Ampere's and Faraday's laws, it was realised that the theory could be more effectively and logically constructed by assuming simply Poyntings' law. All the laws mentioned above can be derived from this simple assumption.

These attempts at the unification of the various theories and the various branches of knowledge demand the creation of very powerful tools of mathematical analysis. In the course of this development, it is inevitable that mathematics should become most abstruse and incomprehensible except to the few experts and specialists. I wish to take this opportunity of reminding those who believe in the legend of the superhuman difficulty of the theory of relativity, that the theory is comparatively a child's play to a good mathematician. There are many subjects in mathematics infinitely more difficult than the theory of relativity.

In this connection we should take note of the change in the conception of the aim of a theory. The materialistic view prevalent in the 19th century had led mathematicians and scientists to believe that the theory should aim at finding the real nature of things. Recent developments in physics have given a death-blow to this philosophy of knowledge. Scientists have now come to recognise their limitations, and declare it as their firm conviction that the object of a theory is only to calculate results that can be compared with experiment, and not to give more detailed answers than can be experimentally verified.

So far we have been speaking only of the constructive side of modern mathematics. But its most characteristic feature is the introspective or critical side which did not exist before the 19th century. Gauss and Cauchy were the first mathematicians to realise the insecure foundations on which mathematics was built, and they turned their attention to a critical examination and rigorous formulation of the whole subject. The work was carried on by Abel, Riemann and Weierstrass.

They examined the foundations of Algebra, Geometry, Theory of numbers and calculus, and found that there were serious defects in the foundations of these subjects due to the hazy notions about the fundamental concepts, and the obscurities in the

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alleged proofs which were in reality no proofs at all. One of the most glaring cases was that of the vagueness in the basic ideas of convergence and limit in analysis. The method of limits originated in the method of exhaustions applied by the Greeks and their successors to determine lengths, areas and volumes in the simple cases of curved lines and surfaces. No doubt was felt as to the existence of these quantities, which were regarded as obvious from geometrical intuition, being the limits of the corresponding quantities for straight figures. Cauchy was the first mathematician who recognised the necessity for a proof of the existence of a limit. That the traditional view of limits, based on intuition, is defective, has been recently confirmed by the construction of continuous functions which possess no differential coefficient, in other words, by continuous curves which possess no tangent at any point.

This process of rigorous formulation led on to the great and important movement in mathematics which started in the last quarter of the 19th century, and which is called the "Arithmetisation of Mathematics". The fundamental thesis of this movement is that intuitions based on our hazy notions of space and magnitude are inexact and often misleading, and that all mathematics should, and could, be derived from the natural numbers. The process of counting is an exact one whereas measurement can only be carried out with a greater or less degree of approximation. This fundamental importance of the numbers was recognised by Gauss who said that "Mathematics is the queen of the sciences, and theory of numbers is the queen of mathematics."

Kronecker went even one step further, and declared that "God made the integers, all the rest is the work of man."

In accordance with the doctrine that mathematics must rest upon a purely arithmetical basis, the theory of irrational numbers so essential in analysis, was satisfactorily given by Weierstrass, Cantor and Dedekind. These researches in the theory of numbers led naturally to the theory of sets, or aggregates, founded and developed by Cantor. The fundamental significance of Cantor's theory of sets is the establishment of the actual existence of the infinitely great number on the same basis as the finite number. To show what a revolution it means in our ideas, we shall quote from Gauss: "I protest against the use of an infinite number as an actual one; this can never be allowed in Mathematics. The infinite is only a *façon de parler*, a figure of speech, ..." This horror of the infinite, expressed by Gauss in 1831, was the motto of the mathematical world. Cantor

challenged this assumption of Gauss, and gave the infinite an equal footing with the finite numbers. It took the mathematical world some time to accept these novel ideas, but when Weierstrass, Hermite, Poincare, and Mittag-Leffler championed them, they soon gained recognition. Cantor went further, and brought about an extension in the scheme of numbers beyond the infinite, at which one cannot but look with wonder and reverence, and without which it is impossible to go a step forward in the development of the theory of sets, and consequently of modern mathematics. These numbers are known to mathematicians as "Alefs" or "Transfinite Numbers."

The methods of the theory of sets have had a far reaching influence both on pure mathematics and its applications. The relation between the theory of sets and the theory of functions has become so close that the latter cannot be thought of as existing without the former. The theory of sets has brought about an extension and differentiation in geometry which was inconceivable previously; it has created the "Theory of Dimensions", and "Analysis Situs" (Topology). Recently, the theory of sets has been applied to the Theory of Probability, and to Physics.

Apart from these applications which are important in themselves, one of the main problems of the theory of sets is to investigate methodically the fundamental ideas of mathematics, such as the ideas of number, order, function, infinity, limit and continuity. Bertrand Russell, writing about Cantor's mastery over the world of infinity, speaks thus: "Zeno was concerned with three problems. These are the problems of the infinitesimal, the infinite, and continuity. From his day to our own, the finest intellects of each generation in turn attacked these problems, but achieved broadly speaking nothing. Weierstrass, Dedekind and Cantor have completely solved them. This achievement is probably the greatest of which the age can boast". David Hilbert calls the theory of sets as "One of the most fruitful and most powerful branches of mathematics". Hermann Weyl goes even so far as to say that "Mathematics is the Science of the Infinite".

The theory of sets contributed a great deal towards clearing the foundations of mathematics, but the theory itself was not founded on a secure basis as became increasingly evident to the mathematical world at the beginning of the present century. It was discovered that the idea of the set or aggregate as formulated by Cantor, leaves room for contradictions which are paradoxical. These paradoxes had at first a crushing effect; it seemed as if the whole structure of mathematics was going to collapse. Frege,

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who had spent years trying to put the mathematics of numbers on a sound logical basis, and who had just finished his life work "Grund-gesetze der Arithmetik", closes the second volume with the following acknowledgement. "A scientist can hardly encounter anything more undesirable than to have the foundation collapse just as the work is finished. I was put in this position by a letter from Mr. Bertrand Russell when the work was almost through the press." Russell had just communicated to Frege his famous paradox on the set of all sets.

But during the thirty-five years that have elapsed since then, much has been written on this subject from mathematical as well as philosophical standpoint. Apart from the fact that mathematicians have learnt to develop the theory of sets in such a way that the paradoxes disappear, these studies have thrown much light on many of the most fundamental problems of human knowledge. The solution has been found in three ways by different schools, each of which is sharply distinguished from the other. The difference is not only methodical; it consists mainly in the whole mathematical outlook. The controversy between the three schools touches the most fundamental questions of mathematics, and it is with respect to these that we speak of a crisis in the foundations of mathematics.

These three schools consist of the Intuitionistic school led by Kronecker, and later by Brouwer and Weyl, the Logistic school of Russell and the Formalistic or Axiomatic school of Hilbert.

The basic principle of the intuitionists is their sharp distinction between the constructions and pure existence theorems. In every branch of mathematics there are proofs for the existence of certain mathematical objects e.g., numbers, functions and sets, which show this existence not by really constructing them, but by a certain non-constructive process, for instance by showing that the non-existence of the object in question would lead to a contradiction of other recognised theorems and principles. The intuitionist considers such non-constructive reasoning as illegitimate. For him existence in mathematics means constructibility.

The second main belief of the intuitionistic school is the rejection of the principle of the "Excluded Middle", i.e., of the principle that one of two opposites must hold, as there can be no third possibility. This principle, commonly known as *reductio ad absurdum*, was a very powerful tool in the classical mathematics of the 19th century; it was often employed to prove the truth of a proposition indirectly by disproving its opposite. The intuitionist objects to this principle, and explains that the law asserting that out of two opposites one must hold, is applicable only to finite sets. He finds no reason whatever for supposing

that a principle which is adequate for the *finite* will continue to produce consistent results when applied to the *infinite*. For example, it is wrong to say that "Either there is a natural number which possesses a given property, or there is no such number." The intuitionist believes in a third possibility that from the very nature of the number, nothing can be concluded about the existence or non-existence of numbers with the said property. Thus even if we have proved that the assumption of the falsehood of a proposition is false, we have by no means established that the proposition is true.

Closely related to the question of the excluded middle is the axiom of the solubility of every mathematical problem. It has been a special impetus to mathematicians to believe that all their problems are soluble in one way or the other. The effort for centuries together to prove Fermat's theorems and many other theorems would never have continued had there existed any doubt about their solubility. The same cannot be said about any other branch of knowledge. The intuitionists are convinced that the certainty about every mathematical problem being intrinsically capable of solution is by no means justified. In their opinion, besides the two cases of an affirmative or a negative answer to a question, there exists a third alternative, namely that of its insolubility. This spirit of resignation stands in sharp contrast to the atmosphere of the immediate past. It is only 35 years since Hilbert announced to the International Mathematical Congress : "Every mathematician shares the conviction that each mathematical problem must be capable of solution". But to-day this conviction does not seem to be so obvious. Hilbert himself is engaged in an effort to decide this problem of solubility at least in the sense that the assumption of its truth is consistent with other principles of mathematics.

The consequences of these intuitionistic ideas were terribly far reaching. They mean that a large part of the most valuable possession of mathematics must be thrown overboard. The intuitionistic programme was therefore considered by a number of mathematicians to be suicidal. They felt the need for a conservative treatment of the paradoxes, and of the consequent defects in the theory of sets. Even though recognising the pressing need for reform, they abstained from the extremely radical measures of the intuitionists. This reform has been taken up by the second, the so-called logistic school, whose foremost exponent is Bertrand Russell, and whose other representatives are Whitehead, Zermelo and Wittgenstein.

The starting point of Russell is the rejection of the non-predicative definition, *i.e.*, the process by which a certain

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representative of a general thought-complex is defined with the aid of the totality of all the representatives of that complex. Russell has been successful in showing that all the paradoxes arise out of the use of such a non-predicative definition. He therefore lays down the rule "that no totality can contain members which can be defined only through the totality itself." In other words, "whatever involves all of a collection must not be one of the collection." Russell calls this the "Vicious-circle Principle" and develops it into his famous theory of types which is the basis of the whole gigantic work, '*Principia Mathematica*.'

But unfortunately, this prohibition of the non-predicative definition was not free from undesirable effects. The structure of classical mathematics could not be built on this basis. A havoc was created of almost the same magnitude as that created by intuitionism. To save this desperate situation, Russell put forward a special axiom—the "Axiom of Reducibility". It says that a propositional function of arbitrary order is equivalent to an elementary propositional function. In other words, the circle of elementary functions is so comprehensive that no function of higher order can be formed which is not equivalent to one of the elementary functions.

The Reducibility Axiom differs from all other logical and mathematical axioms in that it is not tautological, that is, intrinsically necessary. It is even believed to be contradictory to the recognised axioms of logic, and it has not been accepted by the majority of mathematicians.

The main belief of the logistic school is that mathematics is a part of logic. The idea is an old one and was first formulated clearly by Leibnitz, who (in 1666) aimed to create "a general method in which all truths of the reason would be reduced to a kind of calculation". "It will have great advantages for representing exactly and naturally to the mind everything that depends on the imagination". "Its principal utility consists in the consequences and reasonings which can be performed by the operations of symbols". It had some exponents in the 19th century, but was revived in our own time by Bertrand Russell. This conception of logicism had a sequel in the formalistic tendency to do away with the ordinary language with its uncertainties and confusion, and to use the purely symbolical language of modern mathematics. The result is that even to an advanced mathematician unacquainted with the formalism, a book like the *Principia Mathematica* is completely unintelligible.

The third school of thought in mathematics is that founded and developed by Hilbert, and known as the axiomatic or

formalistic school. Weyl has described this school very aptly as one which assimilates completely the fundamental notions and assumptions out of which all other conceptions and results are established by pure definition and deduction. The origin and early development of the axiomatic method lies in the domain of geometry. The axiomatisation of geometry was brought about by Euclid, and later by Gauss and Lobatchewsky when they discovered the non-Euclidian geometry. The more general axiomatic treatment began with Pasch's lectures on the New Geometry in 1882, and reached its culmination in Hilbert's foundations of geometry in 1899. In this evolution from Euclid to Hilbert, the axioms have changed their character completely. They have been dethroned from their privileged position as self-evident truths, and have been placed upon the same footing as other propositions. They are chosen as the starting point only because they are more suitable for the building up of the theory.

For a true appreciation of the axiomatic method, we have to distinguish between two cases. In the first case the axiomatic method can represent only a possible mode of formulation, which is specially appropriate for judging the structure of a theory and valuing its individual propositions. Along with it exists on an equal footing, and sometimes even on a preferential basis, the genetic method which establishes the concepts of the theory by definitions. The axiomatic method plays this equal role for the most part in laying down special concepts and particular problems within greater and well-founded disciplines. But even in general subjects, the axiomatic method can be used side by side with the genetic method. Examples of this kind are to be found in the Theory of Real Numbers, and in the foundations of Analytical Geometry.

On the other hand, for certain fundamental theories the axiomatic method is not only a valuable help, but it is ultimately the only possible method of formulation where the genetic method is either not practicable or leads to logical contradictions. We can mention Pure Geometry and the Theory of Sets as examples of the second case. Hilbert himself characterises the axiomatic method as "the most suitable and indispensable means of every exact enquiry in every domain of thought. It is logical and productive, and therefore leaves complete freedom for our researches. While in the past it often happened that certain propositions were believed naively like so many dogmas, the axiomatic method removes this naive character from the enquiry". Hilbert remarks on another occasion: "I believe that all that can be a subject for scientific thought comes in the sphere of the axiomatic method, and therefore in that of mathematics. In this

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way, mathematics appears to be destined to lead all other sciences". Hilbert and his school have contributed a great deal to the clarification of the most fundamental issues which arise in connection with the axiomatic foundation of the sciences.

In the year 1922, Hilbert began a series of articles on the Foundations of Mathematics. The most important characteristic of this new development is its tendency to separate the main body of mathematics on the one hand, and the foundations of mathematics on the other, into two different sciences. To distinguish it from the former, Hilbert calls the latter "Meta-mathematics". Contrary to the ordinary mathematics, which is concerned with the formal building up of ideas, Meta-mathematics deals with the propositions and inferences of the formal mathematics. Just as the physicist investigates his apparatus and just as the philosopher must criticise his own rational faculty, similarly it is necessary for the mathematician to secure his theoretical structure by a criticism of the principles and proofs on which it is founded. Meta-mathematics has already been developed by Hilbert and his co-workers to a stage which justifies the high expectations that it had aroused.

We shall give a short outline of the work being done in the domain of meta-mathematics. The fundamental questions requiring special attention are those of the Independence, the Completeness and the Consistency of the axioms.

First of all, we remark that the problem of selecting suitable axioms for a science in order to be able to deduce all the remaining theorems from them does not appear to be a definite one. It remains completely arbitrary which and how many theorems we choose as axioms and which ideas as primitive concepts. Some daring person may fall upon the idea of assuming all the theorems of a science as axioms in order to save himself the trouble of proving the difficult propositions. Even if such an undertaking is not to be considered seriously, the question still remains : What limitation is to be set for the number and character of the axioms? This question is answered by the fundamental principle that none of the axioms should be superfluous, or in other words, that it should not be possible to prove any axiom with the help of some or all the remaining ones. An axiom possessing this property is said to be independent of all the other axioms. It is therefore necessary to prove that every axiom of the system is independent. It appears at first that such a proof of independence is a very difficult problem. It is required in fact to show that of all the attempts that can be imagined, none will be successful. This difficulty is overcome in a comparatively simple manner by the positive method used for the first time by the discoverers of the

non-Euclidian geometry, and which through its systematic application by Hilbert and his school has become a classical process in mathematics.

This method consists in constructing a pseudo-system or "model" in which on account of a different significance given to the primitive concepts, the axiom in question does not hold, while all the other axioms remain true. This pseudo-system is then either recognised to be free from contradiction or is proved to be so. From this we conclude that the axiom in question is independent of the other axioms, for if it could be deduced from the others, then it should also hold in the pseudo-system.

From this application of the independence problem, we see its close connection with the problem of consistency. For, as we have seen above, to prove a system of axioms independent is to prove that a certain pseudo-system is free from contradiction, e.g. by the actual realisation of that pseudo-system.

The parallel axiom of Euclidian geometry was finally proved to be independent only when Felix Klein was successful in establishing a correspondence between the points and lines of a non-Euclidian geometry with certain objects of the Euclidian geometry in such a way that the consistency of the Euclidian geometry implied that of the pseudo-geometry.

Along with independence, there is a second and more important property which is ascribed to a system of axioms. This is the property of completeness. The completeness of a system of axioms implies that it must contain the whole theory to be developed in such a way that every question which can be asked in terms of the basic ideas must be capable of being answered in one way or the other by pure deduction from the axioms. Such a characteristic of the system would mean that no further axioms can be added to it, so that the system is "complete". This question is closely connected with the Decision Problem; and since the earlier belief that every mathematical problem can be solved positively or negatively, does not appear to be true or at least self-evident, it may be expected that the problem of deciding whether a given system of axioms is complete or not is in the very nature of things very difficult.

The problem of completeness can be stated thus: Let A be any proposition concerning any system of axioms. In order that the system be complete it is necessary that either the truth or the falsehood only of A shall be consistent with the system, and not each of the two possibilities. Here it is quite immaterial whether the truth or falsehood of A has been actually determined by deduction or that the possibility of such a deduction has been only theoretically established.

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The problem of the independence and completeness of axioms has a vital significance because it is through these that the axiomatic method can claim that economy of thought, which, according to Ernst Mach, is the ultimate goal of all science.

But the most important, and also the most difficult problem for the mathematician is the proof of the consistency of his axioms, that is, the proof that the axioms are individually and mutually free from contradictions.

When the Greek mathematicians, such as Euclid tried to develop geometry on the basis of axioms, the problem of freedom from contradiction must have possessed no significance for them. The primitive ideas about which the axioms asserted something were taken over from life, and the axioms were considered to be partly analytic judgments and partly as facts of immediate experience or intuitions. Considered in this light, they did not appear to need any formulation, and being evident they could not lead to any contradictions. Such a consideration appears to us today to be quite unsatisfactory, partly because our belief in the infallibility of our experience and intuition has been shaken by certain mathematical facts, like the non-Euclidian geometry, or the continuous non-differentiable functions. Another cause which has caused this dissatisfaction is that we have no right to trust our immediate intuition considering the development which has taken place in connection with the choice of axioms out of a large number of propositions. If we want to select a number of theorems from any science, e.g. Geometry, or Algebra, or Theory of sets, in order to consider these selected theorems as a system of axioms, then, as stated above, we have to take care that the system is as independent and complete as possible. We are still at liberty to choose any of the theorems as axioms. In practice, the axioms are selected more or less in the following manner : The simplest theorems about which there is a certainty that all other theorems can be deduced from them are investigated in the light of the general and simple propositions that they contain. If these propositions, apart from being evident, or from agreeing with experience and intuition, are sufficient in order that the primary theorems can be deduced from them, then these propositions are taken to be axioms. These criteria of generality and simplicity have evidently a relative value, and it is therefore not surprising that the axiomatisation of a science is a matter of time and taste, and can never be unique.

For instance, if one considers the elementary plane Geometry or Algebra (so far as it deals with the theory of equations), it will strike him that in Geometry the Pythagoram theorem and in Algebra the fundamental theorem (of the existence of a root) are

more general and comparatively simpler than many theorems of these sciences. He would therefore be right in laying down these theorems as axioms. But on closer consideration it has been found that each of these theorems can be reduced to still more general propositions, more general in the sense that the new propositions allow us to deduce not only the Pythagorean theorem of Geometry and the fundamental theorem of Algebra, but also other equally general theorems. It will be an advance, then, if we take these new propositions as axioms, and consider the old axioms as theorems to be proved with the help of the new axioms.

Here the question arises whether the axioms are individually free from contradiction and mutually consistent. It is not sufficient to show that each individual axiom is free from contradictions, for it is quite possible that in a system each individual axiom may in itself be free from contradiction, while they may not be mutually consistent, and thus may lead collectively to contradictions. We shall illustrate this by an example.

Two simple geometrical theorems the truth of which can be established in their proper domains are :

- (1) "An external angle of a triangle is equal to the sum of the two internal angles not adjacent to it".
- (2) "Each pair of straight lines lying in the same plane has a common point".

If we take these two theorems as axioms in a certain geometry, in which points, lines and planes have the usual significance, we shall soon come across many contradictions. These contradictions arise from the fact that the two theorems are not consistent with each other, for on account of the 1st theorem it is possible to find two straight lines which have no point in common.

In this example, the contradiction is known to us from the beginning, and this knowledge prevents us from taking two such axioms simultaneously in the geometry. But in a system of axioms which through lack of knowledge appears to us to be free from contradiction how can we be sure of this fact?

For the mathematician this question of the proof of freedom from contradiction is a very acute one, and it takes a predominant part in the mathematical literature of the day. We are again indebted to Hilbert for a satisfactory solution of this problem in most of the cases. This solution consists in that the definitions and relations of the science in question (e.g. Geometry) are arranged in one to one correspondence with those of another science (e.g. Arithmetic) which has already been proved to be free from contradictions. The arrangement is such that every theorem of Geometry is transformed into a corresponding theorem

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of Arithmetic. Now if the axioms of Geometry contain a contradiction, *i.e.* if they lead to a contradictory geometrical theorem, then its translation into the language of Arithmetic will give us a contradictory arithmetical theorem which is impossible according to our assumption that Arithmetic has already been proved to be free from contradictions.

We observe then that among the mathematicians of today there are three different opinions about the natural relation of logic and mathematics.

According to Brouwer and his intuitionistic school, mathematics is based on pure intuition and particularly on the intuition of the natural numbers. It is explicitly asserted that logic is based on mathematics. It should be remarked that in the opinion of this school mathematics represents the totality of mental mathematical constructions and not their formal expression in language. It is therefore impossible to build mathematics on logic, whereas logic necessarily requires at least partially the mathematical intuitions.

According to the modern logistic school of Russell, the relation between logic and mathematics is exactly the opposite of the above. They believe that mathematics should be based on logic, and therefore it is necessary to develop logic before mathematics proper, as has been done in *Principia Mathematica*.

The position of the formalists is more or less in the middle between these two, but it is a little more inclined towards the Intuitionists. Hilbert is also of opinion that the roots of mathematics are independent of logic.

Which of these three schools will ultimately prevail to the exclusion of the other two, is impossible to say now, as we are still in the thick of the controversy. But to an impartial observer, it seems improbable that the intuitionistic view would prevail, for it would consequently lead to mathematical nihilism. There is much to be said both for and against the logistic as well as the formalistic school, and we are not yet in a position to pronounce judgment. The solution of the present crisis might lie in one direction or the other, or it might lie in a third direction altogether unexpected and different from both of them. Be it as it may, the three schools have contributed to the main body as well as the foundations of mathematics much that is important and everlasting. We can safely conclude with Whitehead that the Science of Mathematics, in its modern developments, may claim to be the most original creation of the human spirit.

SCHOPENHAUER'S METHOD OF INTUITION

BY

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As far as his view of the nature and genesis of the intellect goes Schopenhauer must be regarded as a fore-runner of the pragmatists. No doubt the pragmatists have adhered more strictly and consistently to this conception of the intellect and have tried to understand the significance of logical problems in its light, it is nevertheless true that the idea originated with Schopenhauer. Schopenhauer agrees with the pragmatists in the view that in *the sphere of the intellect* there is no such thing as the "absolute Wahrheit", and that the truth of an idea is determined when it leads us to the terminus of fact which it means or intends. But Schopenhauer transcends pragmatism when he comes to the realm of philosophy. Whereas the pragmatist finds no "good warrant for ever suspecting the existence of any reality of a higher denomination than that distributed and strung-along and flowing sort of reality we finite beings swim in",¹ to Schopenhauer the whole world of phenomena would appear completely strange, meaningless and insignificant if it were not the expression of an ultimate reality, of a Ding an sich, from which it derives its whole meaning and importance. This priority of Schopenhauer's metaphysical conclusion to his epistemological premises is that which determines his anti-intellectualism. That is to say, his treatment of the intellect is the result of the metaphysics of the "Will." Schopenhauer goes beyond pragmatism when he asserts that though the intellect, being a thoroughly practical tendency, is not capable of understanding anything but that which is related to the interests of practical life, *there is a "Weg von innen"* by which we come to know independently of the principle of sufficient reason (which is the general expression of all the forms of the intellect) not separate and individual things which have their existence in the relations but the essence and reality of those things which lies beyond all relations. On the ground of his pragmatistic epistemology, it seems that Schopenhauer has no right to assert this but his metaphysical position leads him to posit a fundamental opposition between two ways of knowledge: *Rational* (or pragmatistic) *knowledge* which is made use of by science and *intuitive knowledge* which is the true method of metaphysics.

¹ A Pluralistic Univ. p. 213.

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The former naturally gives only a "relative knowledge", moves in relations, affords no clue to the real nature of things and is the "only unconditionally true genuine knowledge worthy of the name." Rational knowledge is pragmatic in its nature and is a "light" which is meant to illumine us in our practical affairs and to guide us to our empirical ends; it is for this purpose only that the intellect—the organ of such knowledge, splits the *essential unity* of the Will—which is given to us in intuitive knowledge and which carries us by an inner way to the innermost essence of the reality—into a *congeries of separate things* and in this way falsifies the nature of the true reality. In all his writings Schopenhauer emphasises this clear cut opposition between rational knowledge and irrational or intuitive knowledge, the "relative" and the "absolute" ways of knowing things. The instrumentalist view of thought which Schopenhauer holds in common with the pragmatist—that thought has been evolved as a means to efficient action—does not necessarily imply that thought *falsifies* the nature of reality upon which it enables us to operate. It is then in the conception of the reality—as disclosed by intuitive knowledge—that the genuine anti-intellectualism of Schopenhauer consists. We have, therefore, here, to examine his method of Intuition.

II

Schopenhauer, then, proceeds to examine the method of science (*i.e.* rational knowledge) in dealing with its object. His purpose is to point out that however far science may advance in its search after the first cause it everywhere encounters something unfathomable and mysterious. The forces of nature remain *qualitates occultae*. Science moves in the rational sphere where one thing exists only by means of the other, where one can recognise the "now" but not the "what", the "form" but not the "content". What science in general determines is the position of phenomena in time and space but it can afford absolutely no information about the inner nature of any one of these phenomena.² Thus the endeavour of the rational or scientific knowledge is only to discover the relations in which objects are placed to each other and in this way to trace time and causality. However extensive and far-reaching may be the results of scientific knowledge it is confined to the sphere of relations only. The most successful and complete aetiological explanation, says Schopenhauer, cannot give any answer with

² Griebash Edition of Schopenhauer's Work. vol. 1, p. 148. Haldane & Kempe vol. 1, p. 126.

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regard to the nature of the forces of nature which always remains unexplained and mysterious. This explanation is simply confined to phenomena and their arrangement and does not extend any further. The science of mechanics in spite of all its advancement is as helpless to explain the nature of the force by virtue of which a stone falls to the ground as physiology to explain that which produces the movement and the growth of an animal.³ And the same is the case with the rest of the sciences. In a striking simile Schopenhauer compares the scientific explanation to a piece of marble which shows its innumerable veins beside each other but does not allow us "to trace the course of the veins from the interior of the marble to its surface."⁴ The inner nature of the simplest as well as the most complex phenomena remains always a secret which scientific knowledge cannot penetrate. What it is interested in is the way in which those phenomena are connected with each other; but that which lies beyond those connections remains inexplicable and fathomless.

And something similar is revealed in human existence also. Corresponding to the unique quality in every unorganised body is in the case of man the unfathomable character which is presupposed in every explanation of his actions from motives⁵ Character is neither explained nor determined by motives; only its manifestations are thus determined at a particular time and a particular place and under particular circumstances. It is itself groundless and inexplicable. Thus there is something unfathomable and incomprehensible not only in the phenomena of the outer nature but in human existence also which rational or scientific knowledge cannot explain. And thus our intellect which is originally meant for the practical purposes of our life can never render a satisfactory explanation of the universe. Upon the path of idea one can never get beyond the idea, it is, in the words of Schopenhauer, "ein geschlossenes Ganzes und hat in ihren eignen Mitteln keinen Faden, der zu dem von ihr toto genere verschiedenen Wesen des Dinges ansich fuhrt."⁶ Thus there being no bridge leading from idea to the essence of the things rational knowledge is absolutely helpless with regard to the ultimate problems of reality. Whatever, then, may be the *nature of the reality*, it cannot be grasped by the ordinary intellectual knowledge which science makes use of. The intellectual faculty, as Schopenhauer puts it, existing exclusively for practical and utilitarian ends, "will from its very nature *always* comprehend

³ G.I. 148, H.K.I. 126.

⁴ Ib. 149. Ib. 126.

⁵ Ib. 180. Ib. 162.

⁶ G.I. 638. H.K. II. p. 118.

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only the relation of things to each other but not the inner nature of them, as it is in itself.”⁷

Here Schopenhauer connects the result which he arrives at by a biological consideration of the genesis of the intellect with the transcendental considerations of Kant. The ‘physiological consideration’ of the origin of the intellect, he says, ‘becomes the supplement of the ideological’, or more adequately, ‘transcendental considerations’ which led Kant to declare the impossibility of metaphysics. Following his own analytical way Kant established that what we know are mere *phenomena*. For he pointed out that the categories of the intellect are only of immanent and not of transcendental use. They are not fitted for the task of thinking the nature of things, the essence and reality of the world and existence that lies beyond our experience. Schopenhauer points out that the genetic account of the intellect enables us to know the intellect in its *origin* and therefore *as necessary*, what the transcendental account of Kant presents only *as a matter of fact*.⁸ “The *phenomena* are the motives for the aims of individual will as they exhibit themselves in the intellect which the will has produced for this purpose, and which when comprehended, as far as one can follow their concentration, afford us in their connection the world which extends itself objectively in time and space”⁹ It is therefore at our own peril if we undertake to discover the inner nature of things by means of the same intellect which, as we have seen, by its very origin and nature is exclusively intended for the practical purposes of life, and which thus affords us nothing but deceptive relations amongst phenomenal things.

If man, says Schopenhauer, was only a knowing being, the way to the real nature of things would be “absolutely cut off from him.” But we are not only “knowing beings” and “die andere Seite unseres eignen Wesens kann uns aufschluss geben uber die andere Seite des Wesens an sich der Dinge.”¹⁰ Schopenhauer urges us to follow this path to get in touch with reality. And this path stands in opposition to the one which the sciences have followed. Thus the radical change in the method of philosophy which Schopenhauer brings about is necessitated by the fact that the reality of things is *toto genere* different from that of phenomena, the relative knowledge of which is given by the sciences. It possesses an existence of quite a different kind. Schopenhauer denies the objectivity of the Will *uberhaupt*. To wish to know it objectively, he says, is really to desire something

⁷ G. vol. II. p. 333. H.K. III. 22.

⁸ G. II. p. 333. H.K. III. 22.

⁹ G. II. p. 334. H.K. III. p. 23.

¹⁰ G. I. p. 638.

contradictory. With this most general form of all phenomena (*i.e.* being object for subject) the other subordinate forms of the principle of sufficient reason also disappear. Thus the knowledge which leads us to the inner nature belonging to the things must be different *toto caelo* from the ordinary scientific knowledge, which, as has been emphasised above, exhausts itself in finding out relations in which external objects are placed to each other in accordance with the principle of sufficient reason.

To repeat: Finding then rational, discursive or scientific knowledge by its very nature incapacitated from solving the ultimate problems of the universe, "intuitive" or "irrational" knowledge is made use of by Schopenhauer. Whilst the knowledge of the relations of phenomena was the aim and object of the scientific way of reflection, "intuitive knowledge" ventures to lift the veil from the face of a metaphysical existence which is the essence and reality of all things. Here the question concerns no longer the "how" but the "what" of things independent of the forms of their phenomena. Thus the possibility of a different *way* of knowledge opens up the possibility of a different *result* of knowledge. The emancipation of knowledge from the laws and forms of phenomena enables it to approach nearer to the ultimate reality of the things. But knowledge thus emancipated is a knowledge of "gans eigener Art." "So ist also" as Volkelt remarks, "das ganze Weltverstehen bei Schopenhauer auf eine *intuitive* und zwar alogische Gewissheitsquelle gegründet."¹¹

III

It is clear, then, that no metaphysics is possible in a rational way, as rational knowledge subjected to the principle of sufficient reason is not capable of transcending the sphere of relations which is the sphere of experience. We can never arrive at the real nature of things "from without." But the immediate knowledge of this is given to us alone in the "intuitive Selbsterfassung." This leaves the sphere of idea and extends itself to the Ding-an-sich. This does not in vain "go round the castle" and "sketch the facades", but places us directly within it.

By means of this intuitive knowledge, says Schopenhauer, we discover in ourselves the "philosophische Wahrheit par excellence" that the reality which manifests itself in our beings is the one indivisible Will. It is thus known "auf eine ganze verschiedene keiner andern zu vergleichende Weise." About this sort of knowledge Schopenhauer says further: "Sie ist eine Erkenntniss ganz eigener Art deren Wahrheit oben deshalb nicht

¹¹ Johannes Volkelt's "Arthur Schopenhauer", p. 132.

einmal eigentlich unter eine der vier Rubriken gebracht werden kann, in welche ich in der Abhandlung über den Satz vom Grund . . . alle Wahrheit geteilt habe." ¹² It is, therefore, distinguished from all other truths inasmuch as it is not like them the relation of an abstract idea to another abstract idea. Its truth is given to us not by scientific analysis or abstraction but is the result of an immediate knowledge free from the forms of the principle of sufficient reason and therefore totally different from all logical or discursive knowledge. The will is thus grasped in the most immediate manner ("ganz unmittelbar") as the metaphysical basis of all phenomenal existence.

Schopenhauer compares his doctrine as regards the knowledge of the ultimate reality with that of Kant and says that Kant is right in so far as he maintains that by means of objective knowledge one can never get beyond the phenomena; one can never penetrate into the real nature of things which always remains hidden from the view. But Schopenhauer points out a way to escape from this difficulty, and thus gives prominence to the truth that (in his view) has been neglected by Kant, "dass wir nicht bloss *das erkennende Subjekt* sind, sondern andererseits auch selbst zu den zu erkennenden Wesen gehören, *selbst das Ding an sich* sind; dass mithin zu jenem selbsteigenen und inneren Wesen der Dinge, bis zu welchem wir von aussen nicht dringen können, uns ein *Weg von Innen offen steht*, gleichsam ein unterirdischer Gang, eine geheime Verbindung, die uns, wie durch Verrath, mit einem Male in die Festung versetzt, welche durch Angriff von aussen zu nehmen unmöglich war." ¹³ This is, in reality, the mystical, non-logical, irrational way of approach to reality which has freed itself from all the logical forms so completely that even the relation of subject and object is obliterated here. Therefore Schopenhauer takes special care to point out that the immediate consciousness of the Will in our nature is not "Anschauung", for "alle Anschauung ist raumlich", nor is it empty, rather it is more real than any other knowledge. ¹⁴ Furthermore it is not a priori like merely formal knowledge but it is "ganz und gar a posteriori." ¹⁵ In the apprehension of Will we get the only opportunity of grasping any event which exhibits itself without from within and it is therefore the only thing which is known to us immediately." The "intuitive Willens-erfassung" thus renders metaphysics possible. It is this metaphysical insight which suggests to the philosopher the

¹² G. I, 154.

¹³ G. II. 226-227.

¹⁴ H.K. II. 405.

¹⁵ Ibidem.

solution of the world's riddle, for grasping the ultimate reality within himself in this immediate manner he comes to possess the key to everything else.

In one respect, then, Schopenhauer agrees with Hegel when he asserts (as opposed to Kant) that we are *not* shut out from the knowledge of the ultimate reality. But Schopenhauer insists (in strict opposition to Hegel) that the knowledge of the Ding-an-sich is attained by the "*intuitive Selbsterfassung*" only. The infinite or the Unconditional which is for Hegel the object of Reason¹⁶ is for Schopenhauer grasped by this inner "*irrational*" way—through the "*back-door*" of inner life. Reason, according to Schopenhauer, is a faculty of abstract, discursive reflective knowledge, which, as we have seen, arises only for the service of life and he ridicules Hegel for calling it a faculty for direct metaphysical knowledge. "A reason which supplies material knowledge primarily out of its own resources, and conveys positive information transcending the sphere of possible experience; a reason which, in order to do this, must contain innate ideas—is a pure fiction invented by our professional philosophers and the product of the terror with which Kant's 'Criticism of Pure Reason' has inspired them."¹⁷ The intuitive knowledge which grasps the ultimate reality is, thus, according to Schopenhauer, of an absolutely "*irrational*" character, or as Volkelt puts it, it is "*in ihre wurzeln hinein von einer der vernunft durchaus entgegengesetzten Art*" (Volkelt's Schopenhauer, Stuttgart, 1907, p. 146).

This "*intuitive Selbsterfassung*" as we have seen leads us, then, to the "*intuitive Welterfassung*." It makes us to understand the true reality of the manifold phenomena of the external world. For in the intuitive knowledge of will as the ultimate reality "*liegt das Datum welches allein tauglich ist der Schlussel zu allem andern zu werden, oder, wie ich gesagt habe, die einzige, enge Pforte zur Wahrheit.*"¹⁸ This leads us to discover that the external world in its inmost nature is that which we find immediately in ourselves as Will. For we now transfer the knowledge we thus gain immediately to the phenomena which are only given to us in an indirect way, that is merely as ideas. Thus we obtain a deep and fundamental knowledge of the inmost nature of the world. This knowledge prevents us from stopping at the phenomena alone but leads us on to the Ding-an-sich.¹⁹ That which was incomprehensible and inexplicable in its inmost

¹⁶ Cf. W. Wallace's *Logic of Hegel*, p. 92.

¹⁷ *Fourfold Root of Sufficient Reason*. Engl. Trans. (Bohn's Library, 1889), p. 138.

¹⁸ G. II. 227: H.K. II. 406.

¹⁹ Cf. G. I. 162. H.K. I. 142.

essence when looked at in a rational or scientific manner becomes easy of solution in the intuitive way. Instead of rational speculations we learn from our inner immediate knowledge that the unknown X which always remained unexplained in all scientific analysis is nothing but what we find in ourselves as Will. The same knowledge, says Schopenhauer, leads us to recognise that all animals both in their actions and also in their whole existence, are the manifestations of the same Will; and further we learn that plants and also the blind forces of nature which act according to universal and unchangeable laws are nothing but the outward expression of the same onrushing reality that we discover in ourselves. The difference between them is merely in the degree of manifestation, not in the nature of what manifests itself. This achievement of the "Geforderten Vereinigung der aussern mit der innern Erkenntnise"²⁰ is, according to Schopenhauer, the result of a spontaneous act of intuition and not that of logical or discursive reflection; all such "deep truths" ("tiefe Warheiten") are obtained in the same intuitive and immediate manner in which reflective thinking, that is always subordinate to the Will, does not play any part.²¹

IV

So far we have seen how by knowing intuitively the real nature of our own being we come to possess a key to the knowledge "des innersten Wesens der gesamten Natur."²² But, as Schopenhauer points out, the "intuitive Welterfassung" is also obtained in a different way when we come to know in objective perception the immediate manifestations of the Ding-an-Sich--the Platonic Ideas. The artistic perception of the Ideas is, according to Schopenhauer, "die tiefste und wahrste Erkenntniss vom eigentlichen Wesen der Welt." Schopenhauer's contention is that the objective perception in its highest degree of clearness and intensity gets rid of the forms of the principle of sufficient reason, emancipates itself from the laws of phenomena and thereby raises itself above the network of relations and grasps a reality which though not the 'in-itself' of the things is at least its immediate manifestation. To the metaphysical glance ("metaphysischer Blick") which pierces through the forms of perception the things reveal their true nature, whereas the sciences following the principle of sufficient reason are condemned to move in the sphere of relations and are thus limited to the phenomena. The intuitive knowledge of the ideas, like the

²⁰ G. III. 290.

²¹ G. IV. 544. cf. also III, 94.

²² G. I. 162.

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"intuitive Selbsterfassung" is *not* logical or discursive and does not proceed according to the principle of sufficient reason in its different forms. Thus Schopenhauer defines it as "die Betrachtungsart der Dinge unabhängig vom Satze des Grundes, im Gegensatz der gerade diesem nachgehenden Betrachtung, welche der Weg der Erfahrung und Wissenschaft ist."²³ The scientific or rational method is alone valid or of use in practical life and the method which looks away from the content of the principle of sufficient reason—the intuitive method—is alone valid in philosophy and art. The first, remarks Schopenhauer, is the method of Aristotle, the second is on the whole that of Plato. Whilst the scientific way of knowledge following the fourfold forms of reason and consequence can never reach a final goal nor attain full satisfaction, the artistic apprehension of the things is "über am Ziel." It grasps that which is outside and independent of all relations and that which alone is really essential to the world, the true contents of its phenomena.²⁴

For the emancipation of knowledge from the forms of the principle of sufficient reason, a great alteration takes place in the subject by virtue of which the subject ceases to be an individual, "is no more individual" ("nicht mehr Individuum ist").²⁵ The individual subject now becomes a universal one; he loses himself in the object, forgets even his subjectivity or individuality or his will and continues to exist as "der reine Subjekt des Erkenntnis," or as "der klare Spiegel des Objekts". The individual subject merges his individuality into that of the object so much so "als ob der Gegenstand allein da wäre, ohne jemanden, der ihn wahrnimmt, und man also nicht mehr den anschauenden von der Anschauung trennen kann, sondern beide Eines geworden sind."²⁶ In this way the distinction of subject and object vanishes. That which is thus revealed is the Platonic Idea. Or as Schopenhauer puts it: When the object passes out of all relation to the will, "dann ist, was also erkannt wird, nicht mehr das einzelne Ding als solches; sondern es ist die Idee, die ewige Form, die unmittelbare Objektität des Willens auf dieser Stufe."²⁷ No longer the when, the where, the why and the whither of things are concerned now but simply and solely the 'what', the real essence of the things.

At this point it is necessary to understand the connection between the Will as Ding-an-sich and the Platonic Ideas. The

²³ G. vol. i. p. 252.

²⁴ G. i. 251 ff. H.K. i. 238 ff.

²⁵ G. i. 244. H.K. i. 231.

²⁶ G. i. 244. H.K. i. 231.

²⁷ *Ibidem*.

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Ideas represented to Schopenhauer the various grades of the adequate objectivity of the Will. They are related to the innumerable individuals composing the species as archtypes to their copies; they are the unattained types or the eternal forms of the things. They never enter themselves into time and space, do not come under the principle of sufficient reason and have, therefore, neither multiplicity nor change, genesis nor destruction. As, however, the principle of sufficient reason is the form under which all knowledge of the subject comes so far as the subject knows as an individual, the Ideas lie quite outside the sphere of rational or scientific knowledge. We have seen above how the individual transcends his individuality and grasps the ideas which thus reveal to him the essence of the phenomenal existence. And Schopenhauer points out that with the great alteration that takes place in the subject of knowledge and makes possible the intuition of ideas, a psychological change also takes place. It is the natural function of the intellect that it acts only in the service of the Will and "according to its destination comprehends nothing in things but their relations to the Will," the direct, the indirect and the possible the sum of which makes up the total of useful knowledge which is really the scientific knowledge. But the apprehension of the ideas and freedom of the intellect from the service of the Will takes place at one and the same time. The intellect now forsakes along with the service of the Will the apprehension of mere relations or that of individual things as such. Thus the pure objectivity of perception (*der reine Objektivität der Anschauung*) is free from willing. And as Schopenhauer shows, "zum reinen willenslosen Erkennen kommt es also, indem das Bewusstsehn andrer Dinge sich so hoch potenzirt, dass das Bewusstsehn vom eigenen Selbst verschwindet Denn nur dann fasst man die Welt rein objektiv auf, wann man nicht mehr weiss dass man dazu gehbrt." ²⁸

And as Volkelt remarks²⁹ this kind of intuitive knowledge which apprehends the idea in its highest degree of purity is very similar to Schelling's "Vernunft-Anschauung." Though, as we know, Schopenhauer has nothing but contempt and scorn for the "intellectual intuition" and calls it a "down-right lie" ("eine palpable Lüge")³⁰ Volkelt thinks that Schopenhauer has failed to understand the true significance of all post-Kantian metaphysicians.³¹ For in reality, as he points out, both Schelling and Schopenhauer ground philosophy on the intuition of the

²⁸ G. II, 432. H.K. III, 127.

²⁹ F. Volkelt's *Arthur Schopenhauer etc.* (Stuttgart 1900). p. 134.

³⁰ G. I. 19, 60 ff; iv, 215 f.

³¹ F. Volkelt's *Arthur Schopenhauer etc.* (Stuttgart 1900).

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genius and thus belong to the category of the romanticists in philosophy. Schopenhauer expressly declares, as we shall see, that when the intuitive knowledge of the ideas reaches its highest grade of clearness and intensity it becomes philosophical. The one essential difference, however, between the position of the two consists in the fact that intuition for Schopenhauer has openly an irrational character whilst for Schelling it appears as the expression of "Vernunft."

And when we consider that the chief characteristic of the pure objectivity of perception (by virtue of which no longer the individual thing as such but the very essence and reality of the things is known) is that it is conditioned by the fact that there is a coincidence of subject and object inasmuch as "one is no longer conscious of oneself but only of the perceived object,"³² the subject passes into the object and becomes one with it, and the perceiver can no longer be separated from the perceived object,³³ we at once come to recognise clearly an inner relation between this sort of intuitive knowledge and the above-mentioned "intuitive Selbsterfassung" about which we noticed the same peculiarity, though it was not so clearly emphasised and was expressed in a wavering manner and sometimes with certain modifications.³⁴ Therefore the identification of the "artistic perception" of the reality and philosophical knowledge explains and is explained by the close relationship which, according to Schopenhauer, exists between philosophy and art. Both, philosophy and art, work at bottom towards the solution of the same problem of existence. "What is life" is the question which they both try to answer with perfect correctness.³⁵ Comparing art and Philosophy with science he says: "So arm und undurftig ist alle Wissenschaft, und ihr Weg ohne Ziel! Aber die Philosophie verlasst ihn und tritt Zu den Künsten über. Da wird sie sein, wie die Künste alle, reich und allgenugsam." In this way Schopenhauer not only asserted an intimate connection between philosophy and art but he originally called philosophy the knowledge of ideas.

Thus "the narrow door to the truth", to the reality which is the life and essence of the things, is opened by this kind of intuitive or irrational knowledge which is the proper instrument made use of by philosophy and art. This, as has already been fully emphasised, is diametrically opposed to the conceptual

³² H.K. III, 128.

³³ *Ib.* I, 232.

³⁴ For these modifications see H.K. II, 406, where it is G. II,—225.

said that this knowledge "falls asunder in subject and object." cf. also G.V. 104 f.

³⁵ H.K. III, 176.

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knowledge which is directed towards relations only and not towards realities. But though Schopenhauer thus despises the abstract conceptual knowledge that the sciences make use of, he nevertheless insists that the work of philosophy consists in bringing the philosophical truths, which every man knows intuitively or in *concreto*, to abstract knowledge. The need of the concept is then felt to demonstrate the philosophical truths which are grasped intuitively. General concepts are the material in which philosophy deposits and stores up its knowledge. Philosophy draws its data from the fountain-source of intuitive knowledge and not from the concepts; they are therefore, the *terminus ad quem* and not the *terminus a quo* of philosophy. It is on this ground that Schopenhauer brings the charge against Kant that he (Kant) started from "indirect or reflective knowledge" and defined philosophy as a "science drawn from conceptions." What he means by this is that Kant found in abstract conceptions the materials of philosophy, while he (Schopenhauer) found in conceptions only the form of philosophy.³⁶ Thus he puts the whole point clearly when he says: "Begriffe sind freilich das Material der Philosophie aber nur so wie der Marmor das Material des Bildhauers ist: ihre Resultate in ihnen niederlegen, nicht aber von ihnen, als dem Gegebenen angehen."³⁷ In this way philosophy represents the results obtained from "intuition" in abstracto and thus it is a "Kunstwerk in Begriffen." The source from which philosophy gets its materials being so different from that of science, it will be useless to seek philosophy in the way of science. One must find it in the way of art for both use the same method of knowledge—that of intuition. And only in this way one can grasp the Absolute.

V

This 'non-logical', 'irrational', 'intuitive' way of knowing the metaphysical reality seems to have a remarkable affinity with that adopted by the mystical Plotinus who regarded it alone as the true and absolute way of knowledge, all the other modes of knowing being considered as false and relative. Thus it will be interesting to notice here briefly the agreement that exists between the views of Plotinus and Schopenhauer with regard to the way of arriving at a full apprehension of the Absolute. I venture to call attention to a few cardinal points. However wide their diversity in other respects, their agreement with regard to these points is as startling as it is significant. It is significant because it illustrates in a striking manner the essential tendency of

³⁶ G. II. 55.

³⁷ G. II. 97. H.K. II. 260.

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Schopenhauer's philosophy which led to his anti-intellectualism though his philosophy is on the whole so wholly unlike that of Plotinus.

The foundation of Plotinian mysticism is that we know the Unknowable because we ourselves in our deepest grounds are the unknowable. We become conscious of the Absolute if we truly know ourselves. The Absolute is the deepest ground of our *self*. Schopenhauer, as we have seen above, takes a very similar position, for he argues that we know the "thing-in-itself" because we ourselves are the "thing-in-itself". The knowledge of our true self enables us to arrive at the knowledge of the absolute. Thus the possibility of this knowledge is conceded by both these thinkers on similar grounds. And, again, for both the knowledge itself is a non-logical, irrational one, in which there is no distinction of subject and object. A brief exposition of Plotinus' view as regards this sort of knowledge will enable us to discern the affinities of Schopenhauer's thought with the mysticism of Plotinus.

"Our greatest difficulty is" says Plotinus, "that consciousness of the One comes not by knowledge"³⁸ (*i.e.* discursive knowledge). The more the human intelligence ventures to grasp the ONE, the more is it troubled; "it feels that it cannot grasp it." It is repelled in its attempts to approach the One. The difference of subject and object that is essential to the intellect incapacitates it from grasping the identity that is over and above all differences. The intellect is at pain in those alien places. It is only at ease in the sense-grasped world³⁹ where it can move freely.

In this way the discursive intelligence is shown to be unable to grasp the ultimate reality and thus from a rationalistic point of view metaphysics is regarded as impossible. But a totally different way is found and it is insisted that "this way must be taken by those that desire the life wisdom within the ONE."⁴⁰ This is the way of an "actual Presence deeper than knowledge."⁴¹ The mind "rises above all knowledge," "holds itself aloof from all knowing and from all knowable"⁴¹ and then grasps the reality. Plotinus points out that at this stage even self-consciousness is transcended, there remains not even "the memory of the personality, no thought that the contemplator is the self—Socrates, for example—or that it is intellect or Soul." "We are not aware of our own personality; we are in possession of

³⁸ Ennead VI, 9. 4. (Eng. Trans. by Stephen Mackenna, 1926).

³⁹ *Ib.* IV. 9. 3.

⁴⁰ Ennead VI, 9. 3.

⁴¹ *Ib.* VI, 9. 4.

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ourselves but the activity is towards the object of vision with which the thinker becomes identified.”⁴² Plotinus explains this by means of various vivid and striking similes. In the intuition of the absolute reality the soul abandons everything else. It is like the visitor who when introduced into a mansion begins to gaze upon its beauty but forgets all when the master of the house presents himself. He fixes his eyes upon him till in the intensity of his contemplation he no longer sees the object but his vision becomes, as it were, incorporate therewith. Now suppose the master of the house is a God who fills the soul of the visitor, this alone “will fitly illustrate the difference between that lower part of intelligence by which it contemplates what is in itself and that higher power by which, in a flash of intuition and inspiration it grasps that which is beyond itself, first seeing it and then becoming one with what it sees.”⁴³

Thus divesting itself of everything that divides it from the ONE, even of thought, the soul merges into it and this is what Plotinus calls the actual Presence superior to any knowledge. And when we lose ourselves in the ONE in this manner we truly come to ourselves. “God is external to nothing and to no one. . . . He who has learned to know himself will know also the being from whom he comes.” If we compare this with what Schopenhauer has said: “Dis letzten Grundgeheimnisse tragt der Mensch in Seinen Innern und dieses ist ihm am unmittelbarsten zugänglich,”⁴⁴ we come indeed to realize the far-reaching agreement between these two thinkers on the point under consideration. According to both of them the knowledge of the Absolute is possible in the first place because our nature in its true aspect is not something different from that of the ultimate reality, and secondly because we are in possession of that superrational or irrational way of knowledge which puts us in the very heart of reality by making us one with the object grasped.

Thus the anti-intellectualism of Schopenhauer leads him to adopt the same mystical way of knowledge which had been adopted long before by such a mystic as Plotinus himself. But it is not very difficult to trace the real source of Schopenhauer’s mystical view of knowledge. That he had a vast knowledge of mysticism in its diverse forms is evident by the references which he gives in his main writings to the mysticism of Oupnekhat, Plotinus and to that of Christianity and Islam, but the trend of his whole philosophical system shows that he was impressed from

⁴² Ib. IV, 4. 2.

⁴³ Ennead VI, 7, 35.

⁴⁴ G. II, 207-208.

Schopenhauer's Method of Intuition

the very beginning by the mystical views of the Hindoos where "the call to surrender all volition as the only way in which deliverance from individual existence and its sufferings is possible,"⁴⁵ has been much emphasised. This is made evident by his ethical doctrine of the "Verneinung des Willens sum Leben" which forms such an important part of his philosophical teachings, but which is an explicit statement of the spirit of the "quietistic" doctrine of the Hindoos. And Schopenhauer himself points out that "quietismus, d.h. aufgeben alles Willens . . . und Mysticismus, d.i. Bewusstsehn der Identität seines eigenen Wesens mit dem aller Dinge, oder dem kern der welt, stehen in genauester Verbindung; so dass wir sech zu einem derselben bekennt allmagllg auch zur Annahme der andern, selbst gegen seinen vorsatz, geleitet wird."⁴⁶ And though (as he shows further) the inner significance and spirit of the teaching of the mystics of all ages has always been the same, it will not be incorrect to say that the way to Schopenhauer's mysticism has been determined to a great extent by his interest in Brahmanism and Buddhism.⁴⁷

⁴⁵ G. ii, 721. H.K. iii, 432.

⁴⁶ G. ii, 722.

⁴⁷ See chap. 48 *passim*.

IMMANUEL KANT ON THE PROBLEMS OF BEAUTY AND ART

BY

Syed Wahiduddin

(A) INTRODUCTORY

“ANY productivity of the highest kind, any remarkable apercu, any invention, any great thought, which bears fruit and brings consequences does not stand in any man’s hand and is above every mundane power. I say this when I consider how often a single thought has given another form to whole centuries and how individuals through what they produced impressed on their time a stamp which remained perceptible in the following generations and continued to work salutarily.” —*Goethe*

The history of ideas is strange indeed. There are some which work at the moment of their birth; others which fall on barren soil. There are ideas which move mountains and give an entirely new direction to the world; and others which, though equally creative and revolutionary, take long before they make themselves felt. Ideas have a life of their own, subject to a destiny which defies rational penetration. The great ideas associated with the name of Immanuel Kant have seen also great vicissitudes of fortune. The influence, which he wielded was not a limited one. He was a man who raised his voice against the pretensions of deductive Metaphysics, against the trivialities of Empiricism and against the dangers of mechanical explanations. He was a thinker who refused to subordinate the demands of morals to speculation. The limits of theoretical Reason and the autonomy of the practical Reason were the great contributions which the sage of Königsberg gave to the world. True, his influence was not all for the good. In the hands of his followers philosophy degenerated into a superficial epistemology and ignored the perennial problems of existence. But that does not interest us at present. What is of moment to us is the fact that the man who destroyed the old and established the new was not the Kant of greatest moment. And indeed eyes are not failing which see in his ideas of beauty and purpose the real Kant. Above all the classical poets of Germany, Goethe and Schiller stood under the spell of his philosophy of beauty and purpose. “For Hegel remained always the Kant who wrote the Critique of

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Judgment, the real Kant, while the epistemological and the ethical side of the Kantian philosophy became clear to him in its correction through his successors."

The whole train of the philosopher's thought will remain a sealed book to us if we do not make clear at the outset his psychological background. Kant's psychology is his weakness. The interpenetration of diverse functions was a concept which was unfortunately alien to him. His division of the spirit into knowledge, feeling and desire follows the traditional lines. The whole capacity of knowledge is divided into understanding and Reason. It is understanding (*Verstand*) which brings into order the chaos of the sensory data and has as its basis certain *apriori* maxims and categories. It is Reason (*Vernunft*) which never applies primarily to any object or experience but to understanding itself. This bifurcation of knowledge into two heterogenous elements threatened to imperil its unity. The Critique of Judgment restores the original Unity. The faculty of judgment, we are told, is a link between the two.

The question of Judgment is bound up with the question of feeling. What is its nature and how does it relate itself to Judgment? Kant's treatment of feelings is both superficial and intellectualistic. He thinks of feelings in terms of ideas (*Vorstellungskrafte*). Kant is satisfied with the old Pleasure—Pain theory which sees in feelings either the one or the other. It is remarkable that in recent times the growing dissatisfaction with it has led the psychologists to modify their ancient conception. The late W. Wundt and Felix Kruger of Leipzig have given a new orientation to the whole problem, and have emphasised the multi-dimensional character of feeling. True, all our experience is coloured by pleasure or pain. But they are only superficial manifestations of a deeper emotionality. Nor is there any irreconcilable antagonism between the two. Poets in this respect have been wiser than the psychologists. Says Shelley:—

Our sincerest laughter
With some pain is fraught.

No less interesting is the testimony of the Danish thinker Søren Kierkegaard, "In the hidden depths of feeling the strings of joy and sorrow lie so near the one to the other that the latter ring all too lightly when the former are touched."

Kant, however, is quite satisfied with the dichotomy of pleasure and pain and inquires into the relation of feeling to aesthetic judgments. "Though they do not contribute by themselves alone to any knowledge of things, they belong only to the

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faculty of knowledge and show a relation of the faculty to the feelings of pleasure and pain in accordance with some principle a priori." Aesthetic judgments are judgments which are accompanied by a feeling of pleasure. We are again struck by another peculiarity. They are reflective, not determining. "The faculty of judgment as such is the capacity to think of the particular as contained in the general. Is the general (the rule, principle, law) given, the judgment which subsumes the particular (also when it is a transcendental judgment a priori and gives the conditions according to which alone it can be subsumed under the general) is determinative. But if the particular is given and the general is sought for it the judgment is reflective." We shall come to know the importance of this distinction in the course of our enquiry.

One of the basic concepts of the Critique of Judgment is purposiveness and its varieties. "The subjective element of an idea which can by no means become a piece of knowledge is the pleasure or pain which accompanies it; for through that I know nothing in the object of an idea, though it may well be the effect of some knowledge." The purposiveness of a thing so far as it is represented in perception is not the quality of the object but the subjective quality of the idea. It is not a part of some knowledge. The object is purposive when it is bound up with a feeling of pleasure. This is the aesthetic or formal purposiveness, which does not lay any claim to objectivity. If on the other hand purposiveness is taken not as in correspondence with knowledge and imagination but as something objective and brought under concepts, we posit a logical purposiveness independent of all feelings and leaving behind the pure realm of beauty. The formal purposiveness of beauty and the logical purposiveness of Nature are the two extremes of Kant's inquiry. We are at present concerned only with that "purposiveness without a purpose" which characterises the beautiful.

(B) AESTHETICS

What is the beautiful? The judgment of taste is not a judgment which gives us knowledge but simply shows the condition of a subject as affected by an idea. Nor is there any place for interest therein. When you are interested in anything you are interested above all in its reality, whether it exists after all. But in questions of beauty this very question is ignored. We are happy in the very contemplation. "When someone asks me of the palace which I see before me whether I also find it beautiful, I may of course say: I do not love things which are

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only made to be stared at I can revile the vanity of the great a la Rousseau which uses the labour of people on things which can be easily dispensed with. I can more-over be easily convinced that if ever I find myself on a deserted island without any hope to see man anymore, and if I can simply conjure up a magnificent building by wishing only, I would not take even so much trouble had I a hut which would be comfortable enough for me. One can concede and approve of all this; but that is not the point. One would know whether the mere idea of an object is accompanied with agreeableness, however indifferent I may be as regards the existence of the object of this idea." The existence of this object then is not relevant in judgments of taste.

Interest is bound up with the pleasant (*Angenehm*) and the good; only the beautiful is disinterested. The good stands under concepts; the beautiful accompanies feelings. The sensation of an external object if agreeable is pleasant; the idea independent of its existence, if agreeable, is beautiful. "To find something good I must always know what sort of a thing is the object, must have a concept of the same." Even happiness, the sum of all pleasures, is not the highest good. "Only through what he does, without regard to pleasure (*Genuss*) and in complete freedom and independence of all that Nature can provide him with, does he give his being as the existence of a person an absolute value; and happiness with all the fullness of its pleasures is not at all an unconditional good." Irrational animals can have pleasure; but beauty is for man and for man only. Animality and rationality are both necessary for beauty. The good on the other hand is valid for all rational beings, spirits included. The agreeable has only private validity, the beautiful general validity and the good universal validity. The general validity of aesthetic judgments where one is expected to agree does not depend on concepts but is subjective. Judgments of taste are again individual not universal. The judgment, for example, *all roses are beautiful*, is one of knowledge, not of pure beauty, for it has resulted through a comparison of many roses. "Only the rose which I see before me I declare through a judgment of taste to be beautiful."

The unreality of the object of an aesthetic judgment has important consequences. Its purposiveness is simply formal. The purpose, if subjective, brings interest as a determining factor; if objective, the principles of *nexus finalis* come into play. It is a purposiveness without a purpose which precedes pleasure. No judgment, if based on pleasure, will be pure, *i.e.*, a pure judgment of taste.

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Nor has perfection any relation to beauty. When we judge anything as perfect we are in the realm of the good which presupposed "the relation of an object to a definite purpose." But beauty has no purposiveness, whether the outer, the usefulness,—or the inner, the perfection of an object. Kant draws an interesting distinction between a free beauty and an "attached" beauty. The former is free from the concept of the object, the latter assumes the perfection of the object. "Flowers are free beauties." It is not the knowledge of a botanist which enables us to appreciate them. "Only the beauty of a man (that of male, female or child) the beauty of a horse, a building, (as a church, palace, arsenal or garden) presupposes the concept of a purpose which determines what a thing should be, and therefore a concept of perfection. It is an adhering beauty."

Is there any ideal of beauty? For Kant, idea and ideal are not the same. We know that the Kantian Idea is transcendently a demand of reason. God is such an Idea. An ideal is the representation of an individual which adequately fulfils such a demand. "Firstly it is to be observed that the beauty for which an ideal is to be sought cannot be a vague something but is to be fixed by the concept of an objective purposiveness." An ideal of beauty brings with itself moments external to itself, perfection and purpose. There is no ideal of beautiful flowers or of beautiful house or of beautiful garden. "Only that which has an end of its existence in itself,—Man, who can determine his ends by reason. this is the ideal of beauty, as mankind in its person as intelligence is alone capable of the ideal of perfection among all the objects of the world."

There is another peculiarity of the judgment of taste, its modality as Kant calls it, which needs an explanation. How is it that I regard feelings of pleasure as necessarily bound up with beauty? I am not satisfied with private validity of the judgment, but demand a general validity. The idea of a general sense is then a norm which makes possible such judgments. It is not the common sense of the understanding but a general sense which we have to assume. The necessity of an aesthetic judgment is a general subjective necessity.

It is interesting to note that Kant's analysis of beauty is based on that conception of the free play of the imagination which has seen such fruitful development in Schiller. It is not rules and laws, or mathematical symmetry but freedom where beauty is at home. "Even the song of a bird which we cannot bring under any musical law seems to contain more of freedom

and therefore of taste than a human song which is led by all the rules of a musical art: for man by the latter, if repeated long and often, will be disturbed sooner or later. Probably we confuse here our participation in the gaiety of a little lovable animal with the beauty of its song which if imitated exactly by man (as sometimes happens with the tones of a nightingale) seems unpleasing to us."

Again, it is to be noted that beautiful objects are not the same as the beautiful views of them. As regards the latter the imagination takes pleasure in its own fancies and free play, not on what it really fastens on.

The beautiful finds its counterpart in the sublime. Here again the judgment, if pure, should carry disinterestedness, general validity, formal purposiveness and a necessary relation to pleasure. There the idea of quality, here that of quantity is determining. The beautiful favours the vital powers: the sublime arrests them primarily only to provide a greater outlet for them. The imagination no more plays with itself: it is in dead earnest. The inadequacy of our imagination to give a sensual manifestation of the ideas of reason is that which excites in us the feeling of the sublime. Kant distinguished between the mathematically sublime and the dynamically sublime. The mathematically sublime is not only great, but absolutely great, beyond all comparison. "Sublime is that in comparison to which every other thing is small." No object of the senses as given in nature is sublime. It is our feeling which carries us to the Infinite, the sensory data providing only an occasion. "The sublime is that which to think even proves the capacity of the spirit exceeding any measure of the senses." The imagination takes us right into the heart of the Infinite. "Nature is therefore sublime in all its manifestations, whose very perception (*Anschauung*) carries with it the idea of an Infinite." The judgment which has beauty as its object shows how imagination in its free play is related to understanding in order to agree with its concepts: while a judgment of the sublime shows imagination in relation to the ideas of the reason for a subjective agreement. The ideas of reason are indemonstrable: the imagination with its visions (*Anschauungen*) cannot rise to their heights. The aesthetic ideas are 'inexponible' i.e. the ideas of imagination cannot be brought into concepts. The inadequacy of imagination to rise to the ideas of reason inspires in us a feeling which is respect. We see how every capacity of the senses fails before the might of reason. Now the feeling which is generated thereby is

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first of a pain and then of a pleasure; pain for the helplessness of the imagination, pleasure for the love of reason which impels us to think of nature as small against the ideas of reason. "The spirit (Gemut) feels itself moved before the ideas of the sublime in nature: while it is in calm contemplation in the aesthetic judgment of the beautiful. This movement can (especially in the beginning) be compared with a shock *i.e.* with a rapidly changing repulsion and attraction of the same object."

Kant's Critique may justly be called idealistic in so far as it reverts to the spirit to find the beautiful and the sublime. The beautiful, we are told, lay in the formal purposiveness; the sublime we are informed, is not in the objects without but in the feeling which is born in us through the incompetence of the imagination as regards the supra-sensual ideas of the reason. It is remarkable that the thinker who banished the supra-sensual from the realm of rational metaphysics should show a tendency on every line of his work to go back to the forlorn mistress. In his treatment of what he calls the dynamically sublime he again becomes restive in nature which reveals itself to the senses. Nature regarded as a power (Macht) which has no force (Gewalt) over us, and which is an object of fear, is dynamically sublime. The condition is of course to be fulfilled that we ourselves are not immediately exposed to the dangers but can in safety contemplate them. The stormy sea is not sublime for the poor man whose lot it is to be ship-wrecked: nor the towering heights of the mountain for those who become their prey. It is to be borne in mind that Kant has a remarkable theory of the destiny of man. As a piece of nature (Naturwesen) he is exposed to the laws of nature and counts for nothing against the immensity of space and the infiniteness of time, against seas and mountains. As a rational being (Vernunftwesen), on the other hand he is free and above the caprice of nature. The feeling of the sublime is our awakening to our destiny as rational being and to our supremacy over nature. We thus rise to the supreme not through any flattery or fear, but through the realization of our destiny, which transcends nature. This is really the true religion which distinguishes itself from the superstition that there we find, "not awe for the sublime but fear and anxiety with regard to the Almighty before whose will the terrified bows himself without any great sense of his value." The judgments of the beautiful and the sublime both carry general validity, but in as much as the sublime is bound up with the ideas of reason it requires certain culture to find access thereto. For primitive men all that we call

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sublime will be simply horror awakening. Nevertheless the sublime has its roots in human nature where the tendency to moral ideas is inborn.

Our feelings (*Affecte*) even can be of harder stuff and may be regarded as sublime: or of tender stuff and may be beautiful. But anything prose or poetry, nay a religious sermon, if it makes us insensitive to duty, induces in us a humiliation and cringing attitude to the supreme. A repentance which makes us cry, a humiliation which runs counter to the dignity of man cannot be called beautiful, much less sublime. It strikes us that Kant thinks as much of the dignity of man as that of God. A God who humiliates and degrades man does not come into his vision. The divine in man, or as Meister Eckhart says, the divine spark in him, is the moral idea. Kant's way to God is through the dignity of man, which is based on the voice of duty, the moral idea.

Now Kant comes to a point where he asks what right we have to judge something beautiful not only for ourselves but for one and all. The aesthetic judgment is general and necessary. This claim for general validity and necessity requires a 'deduction' *i.e.* a justification. So far as the judgments of the sublime are concerned, their very exposition is their deduction: for the sublimity is not in nature but in our own feelings. Cognition and will are so purposively related together a priori in the judgment of the sublime that the deduction is no more called for. Hence there remain only the judgments of the beautiful. We know that the central problem of the critique of Pure Reason was the question: How are synthetic judgments a priori possible? The old question crops up here again: How are aesthetic judgments a priori possible? That they are synthetic is clear from the fact that the predicate is not a concept at all, but a feeling of pleasure and pain which is naturally something new for the subject. What right have I to maintain that what I judge to be beautiful is necessarily beautiful for one and all? That there may be mistakes no one can deny: for they can be made even in judgments of knowledge; but these characteristics of general validity and necessity demand an explanation. It is because the pleasure is bound up only with the form of the object and the judgment is based on formal purposiveness that the agreement of the idea with the general condition of the judgment can be taken as a priori valid for all. That the subjective conditions of judgment are common to man transforms the private validity into a general validity.

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We find pleasures of diverse kinds. A good dish is pleasant; this is the pleasure of the senses. An action is pleasant if it is in conformity with the idea of our destiny; this is the pleasure of moral feeling. And lastly the sublime is pleasant, for it involves the supra-sensual. But the pleasure of beauty is unique. It is the result of the agreement of the laws of understanding with the freedom of imagination. The subjective conditions being common to all, the feeling may be expected in every subject.

Judgments of taste though of course free from any interest can be subsequently united with some. The interest which is indirectly related to the beautiful can be empirical or intellectual. The empirical interest which results from our social tendencies is of no moment for a transcendental aesthetic which aims only at a priori principles. "For himself alone an abandoned man on a wild island would not adorn his hut nor himself or seek flowers or still less plant them to adorn himself with them; it is in society that he thinks of becoming not only a man but a fine man (the beginning of civilisation): for one judges as such a person who is inclined to communicate his pleasure to others and whom no object satisfies unless he can feel pleasure in the same in company of others." Gradually the value of pleasures will be judged according as they are capable of general communication.

Interest in the beauties of nature is a sign of a beautiful soul. Though it is true on the one side that some artists lead a life hardly superior in goodness of heart to any ordinary individual, it is true at the same time that he who is interested in the free beauties of nature shows moral greatness. "He who alone (and without purpose letting his observations be communicated to others) contemplates the beautiful form of a wild flower, a bird, an insect, in order to admire and love them, and refuses to renounce them, though there may accrue to him no advantage therefrom, takes an immediate and indeed an intellectual interest in the beautiful." And again: "The interest is moral in its relation and he who takes an interest in the beauty of nature can do this so far as he has based his interest on the moral good." Nature is therefore superior to art.

What is the nature of art? It has its roots of course in rational deliberation and even if, as it happens, we attribute art to the working of the bee we do so after an analogy. Apart from the mechanical arts, which do not come into question here, there are pleasant and fine arts. To the pleasant arts belong all the stimuli which go to cheer society at the table: free conversation for which no one is responsible and where one's aim is only to give cheer to company, nay, even the way in which the table is

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arranged,—these things are pleasant arts. The fine arts on the other hand are purposive in themselves and they have for guide not sense but reflective judgment. Though in the arts something is carried out with a purpose, the purpose itself does not and must not assert itself in consciousness. “Nature was beautiful when she appeared as art at the same time: and art can only be called beautiful when we are aware that it is art and still it seems to be nature.”

Art has as its indispensable condition genius. Kant's conception of genius is fascinating indeed. As he confines it only to art it is much narrower than what it is generally taken to be. It is that inborn talent through which fine arts receive laws from nature. Taste can judge beautiful objects: only genius can produce them. Natural beauties require only taste to appreciate them: art is only possible through genius. Genius is the inborn talent which aims at the expression of the aesthetic ideas, the counterpart of the ideas of reason. The latter cannot be adequately imagined: the former cannot be adequately conceived *i.e.*, do not find a concept wherein they can be exhausted: but both take us beyond the frontiers of experience. Genius is therefore a harmony of imagination and understanding. The imagination is free play: understanding a conformity to law. The faculty of judgment mediates between the two and keeps them within bounds. Genius is free; it is taste which bridles genius.

Nor can we reckon humour as a fine art. Laughter which it aims at is produced by a sudden disappointment of an expectation and partakes of nonsense. It has more of a physiological significance, furthers vital powers and favours health. Our ideas vacillate and elude our grasp. Naivety is not an art either. “One laughs at the simplicity which does not yet know how to dissimulate itself and one is happy at the simpleness of nature which provides a cross-section to art. We are at the same time moved by sorrow and approval: approval of the fact that after all the original goodness of human heart has not yet died down: sorrow for the fact that it is only a momentary phenomenon. Both of these elements are combined in the feeling which results in well-meant laughter. “An art to be naive is a contradiction: only to think of naivety in an imagined person is indeed quite possible and a beautiful, though a rare art.”

Is there also a dialectic of the aesthetic judgment? Kant had shown in his Critique of Pure Reason that the moment the reason goes beyond the confines of all possible experience it becomes involved in a dialectic *i.e.*, in the affirmation of the contradictory principles (antinomies) which can neither be

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proved nor disproved. That a causality through the laws of nature leaves no room for another causality or that it does leave room for freedom independent of all natural determination can equally be proved. Kant found such antinomies in the realms of both Pure Reason and Practical Reason. Now he asks: Are there antinomies to be found in the principles a priori of judgment? There can be no antinomies in experience. From the fact that a dish is pleasant to me and unpleasant to you there results no antinomy. Only a conflict of the principles a priori gives a dialectic. The thesis therefore of the antinomy goes to maintain that the judgment of taste does not base itself on concepts: for otherwise proofs would be decisive. The anti-thesis on the other hand posits that the judgment of taste does base itself on concepts: for otherwise how can we claim the necessity of a general agreement? How are we to reconcile the conflict? The metaphysical moment of Kant's thought here again comes to his rescue. He admits that the judgments of taste, so far as an individual representation is related to the feeling of pleasure, is a private judgment and has no claim on general validity. But that is not all. The judgment of taste has its foundation in the undetermined concept of the reason which is the supra-sensual substratum of mankind. The generality and necessity of aesthetic judgments can only be explained with reference to their metaphysical basis. Now the thesis would be true in so far as it maintains that the judgment of taste is not based on definite concept, and the anti-thesis in so far as it affirms that it is based on a concept, though an indefinite one, of the supra-sensual substratum of the appearances. Kant is therefore forced to confess that a resort to the supra-sensual is the only way out even in the realm of pure aesthetics. "One sees also that the lifting up of the antinomy of judgment takes a similar course to that which the critique followed in respect of the solution of the antinomies of pure reason: and that even here and also in the critique of practical reason the antinomies force us against our own will to go beyond the senses and to seek in the supra-sensual the uniting point of all our a priori faculties: while this is the only course to bring reason in accord with itself. Hence we are driven over to the unconditional and supra-sensual. It shows itself in nature as its substratum, in art and beauty as the principle of the subjective purposiveness of nature for our knowledge, and lastly in morals as the principle of freedom."

To Conclude:—beauty is not the quality of the object but consists in the agreement of the free play of the imagination on the one side, and the conformity to law of the understanding on

the other; the purposiveness which it supposes is only subjective. In other words the purposiveness is ideal and the idealism of purposiveness it is which Kant accepts. If, on the other hand, it is assumed that nature itself has a definite purpose in view and beauty is aimed at by nature to please us, the realism and the objectivity of purpose will hold good. Such a realistic view of beauty will not distinguish it from the good and mean its annihilation. It is not therefore by the favour of nature that we find it beautiful but by our own favour that we take it as such. The same is true for art. This is to be taken not as a product of understanding or science but that of genius. The pleasure that we derive from aesthetic ideas is not dependent on the fulfilment of any purpose. "As the ideality of the objects of the senses as appearances in the critique of pure reason was the only way to explain the possibility how their forms can be determined a priori, so it is the idealism of the purposiveness in the judgment of the beautiful of nature and art by which alone a critique of the possibility of a judgment of taste requiring validity for every man can be explained."

Hardly any other thinker is to be found in the whole history of European thought who is so much dominated by such rigorous motives. Though he has cautiously and punctiliously distinguished the beautiful from the good he at last cannot refrain from bringing the beautiful into relation to the good. The beautiful we are told is a symbol of the ethical. What are symbols and what is their role? Kant's observations are profound. The reality of the concepts can only be given in intuitions (*Anschauungen*). The concepts of the understanding for example can claim a reality only when corresponding intuitions are given: These are called by Kant. *Schemata*. The Schema of causality is the succession of manifoldness; of reality existence in a definite time. But we know that no intuition corresponding to the ideas of reason is to be found. We can still resort to an Intuition analogically; in other words, by "the transfer of the reflection from an object of Intuition to quite a different concept." They are then symbols or indirect manifestations of the concepts. "Thus a monarchical State will be thought of as a living body when it is ruled by the inner laws of the people, and as a simple machine (say like a hand-mill) when ruled by an individual absolute will,—in both cases symbolically." Language is rich in such symbols; ground and substance for example. The knowledge of God can be no more than symbolic and an error to the contrary involves us in anthropomorphism. The beautiful is therefore the symbol of the good and in the

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faculty of judgment we find to our surprise the unity of our practical and theoretical functions. "The consideration of this analogy is familiar even to common sense and we often give beautiful objects of nature or art names which seem to have as their basis moral judgment. We call buildings and trees majestic or magnificent, the fields cheerful and gay, even colours are called innocent (*Unschuldig*), modest and tender, while they excite sensations which have something analogical to the consciousness of the mental state resulting from moral judgments. Taste makes possible at the same time the transition from the stimuli of the senses to a habitual moral interest without any violent leap, and even teaches us to find a free pleasure (*Wohlgefallen*) in the objects of the senses without any sensory stimuli."

In fine we can never have a science of taste but we can have a propaedeutic for the same. It consists in the furtherance of humanity and our feeling of participation on the one side, our capacity for effective and general communication on the other. "The true propaedeutic for the foundation of taste is the development of ethical ideas and the culture of moral feelings, while it is only when it is brought into agreement with the senses that a pure taste can take an unchangeable form."

We become here aware of the difference of the Kantian and the Platonic conceptions of the beautiful. For Plato it is the essence whose shadow the appearances are; for Kant beauty is the symbol of the good. For Plato both are identical: the beautiful on earth reminds us of the beauty eternal. Both are idealists but in a different way. Plato's is a transcendental idealism which ascribes a metaphysical reality to beauty; Kant's is an idealism which makes of the beautiful a result of the judgment. But thinkers of so different a calibre are one in one respect; both leave the world of conditions and make a halt in the supra-sensual. Plato is only at home in the eternal realm of ideas; Kant is forced against his own will to see in the supra-sensual the ground of the necessity and the general validity of the judgments of the beautiful.

LAW OF BAITULMAL

BY

Allama Abdul Qadeer Siddiqi

AND

Syed Abdul Latif

SECTION I

MUSLIM LAW OF BAITULMAL

THE Institution of "Baitulmal" is peculiar to the Muslim Law. The term originally meant a place where property was kept, but through Muslim legal usage, it came to mean the property left by a Muslim dying without an heir. *Vide Hashia Sharifi Sharh Siraji.*

Such property has from the beginning of Islam been administered by every Muslim State for the exclusive benefit of the *Muslim poor*. Its provisions as codified originally in the time of the Abbasides by Imam Abu Hanifa, Imam Abu Yusuf and Imam Muhammad form till now part of the Muslim Law of succession. That these provisions were followed by every successive generation of Muslims is endorsed by the authoritative works on Muslim Law written at important stages of Muslim history down to our own times—works such as *Muhit-e-Sarakshi, Quduri, Kanzud-Daqaiq, Sharh Viqaya, Hidaya, Bahrur-Rayiq Sharh Kanzud-Daqaiq, Aini Sharh Hidaya, Fath-ul-Qadeer, Fatawa-e-Alamgiri, Tahawi, Tahtawi Sharh Durrul-Mukhtar, Rad-ul-Mukhtar Sharh Durrul-Mukhtar, Fatawa-e-Mahdawiya* etc. The authorities mentioned here, be it noted, include *Fatawa-e-Alamgiri* codified in the time of the Mogul Emperor Awrangzeb and freely referred to at the present day in Judicial decisions both in Hyderabad and British India.

KINDS OF BAITULMAL

The Baitulmal has been classified by Muslim Jurists into four kinds:

"The first kind of Baitulmal consists of the spoils of war, minerals and treasure trove; the second of Zakat and charities; the third of land revenue, tithes and customs; and the fourth of property without an owner, such as property left by a person dying without any heir". (*Vide Raddul-Mukhtar Sharh-e-Durrul-Mukhtar* Chapter on Baitulmal, page 59.)

Raddul-Mukhtar and *Fatawa-e-Alamgiri* enumerate the kinds of property which falls under the fourth category, and they include unclaimed property and property left by a Muslim dying heirless.

USES OF BAITULMAL

The objects on which this fourth kind of Baitulmal is to be spent are specified clearly by all the authorities mentioned above; and they include:

“ Looking after destitute sick and foundlings, providing funeral for the poor, maintenance of the disabled destitutes, and making provision on anything which helps the moral and material progress of the Muslims and for similar needs ” (Vide *Fatawa-e-Alamgiri* 190 and 191, Volume 1. Baitulmal.)

ADMINISTRATION OF BAITULMAL

All the authorities agree that this fourth variety of Baitulmal is a Trust of the Muslims and should be administered by the State. *Raddul-Muhtar Sharh-e-Durrul-Mukhtar* (page 59):—

“ The Ruler must keep the four kinds of Baitulmal in separate chambers or under separate departments and should not mix them up. If at any time any one of these is exhausted or does not contain enough to meet the expenses on the items with which it is concerned, the Ruler may borrow from any other of the remaining departments of the Baitulmal and replenish it as soon as the department borrowing is in a position to refund the sum borrowed ”.

The provisions of the Muslim Law of Baitulmal make it clear that since the fourth chamber contains the property left by Muslims, its contents should be utilized exclusively for the benefit of the Muslim poor, and should not be diverted to any other purpose. The *Zimmi* or a non-Muslim subject of the State has no right to its enjoyment. The law however provides that in special cases when a non-Muslim is *starving*, the State should provide him with food from this source, in case it cannot do so from any other. (Vide *Fatawa-e-Alamgiri*, Volume 1, Section Baitulmal).

ATTIYATS OR ROYAL GRANTS OF JAGIRS

The question arises whether the provisions of the Muslim law of succession apply equally to royal grants.

The Muslim law is clear that every grant, royal or otherwise which is given to a person in perpetuity or to be enjoyed by his successors *as well*, from generation to generation, is irreversible, and that if any holder of it should leave behind no heir of his blood, it should devolve on the entire Muslim community and form the Baitulmal of the fourth variety and be utilized as such in the manner specified by the Muslim law.

Raddul-Muhtar, Vol. 3, Chapter on Al-Ushr-wa-Kharaj-wa-Jizia, page 265 states:

“ If any Ruler wishes to make a grant of a portion of his territory to any one, he can do so; hence it is not ‘ Halal ’ or legitimate for his successors to take it back from one who holds it, whether he is heir to the original grantee or has purchased it from him. The Ruler has the right to make a grant of anything he likes from the State resources to any one who is permitted in Islam to receive a grant from a Ruler, in order that the Ruler might gather strength against his enemies, or effect that which is beneficial to Muslims, or promote their moral and material well-being. It should thus be clear that just as a Ruler is free to make a grant of money, so also it is lawful for him to make a grant of a land to any one deserving of it so as to be made use of even as his own property by him, since in law, there is no difference between a grant of land and a grant of ‘ chattel ’ ”.

An authentic ‘ Hadis ’ or Tradition of the Prophet recorded by Imam Ahmad, Imam Muslim, and Abu Dawood states:

“ That grant of land alone is truly Umari (jagir in Persian) ” said the Prophet, “ about which the grantor should say, ‘ this land is for thee and thy progeny ’. If however he should say: ‘ This is for thee while you live ’, the land is reversible to the original owner ”.

Another authentic Hadis recorded by Abu Dawood, Tirmizi, and Nisai states:

“ Said the Prophet: If any ‘ Umari (jagir) is granted in favour of a person and his progeny, then, that grant becomes the property of the person to whom it is granted. Such a grant will not be reversible to the grantor; for to such a grant the law of succession applies ”.

SECTION II

PRACTICE IN HYDERABAD

Such being the Muslim Law governing private property as well as royal Attiyat or grants of jagirs held by a Muslim dying heirless, it is evident that the policy followed by Government of Hyderabad in recent years of treating them as *escheats* in the English sense is contrary to the Muslim Law. The Attiyats are royal grants given in perpetuity—‘ Dawaman ’ (in perpetuity) ‘ ta qiyame shams-wa-qamar ’ (while the sun and the moon last), ‘ Awlad wa Ihfad ’ (progeny), ‘ naslan ba’da naslin ’ (male line) and ‘ batnan ba’da batnin ’ (female line)—and cannot therefore revert to the Crown under any circumstances, specially, when the standing order of the State (§ 1434, Consolidated rules of the Revenue Departments, Vol. 2, p. 225.) lays down specifically that “ Succession to jagirs of the Muslims should be in accordance with the provisions of the *Shar’-e-Shariff*, and of the Hindus according to the *Dharma Shastras* ”.

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PRACTICE IN BRITISH INDIA

The practice in Hyderabad to treat the property left behind by a Muslim dying heirless as escheats devolving on the Crown is inspired by the practice in British India and England. There an attempt was made two years ago to set this right through the introduction of a Bill in the Central Legislative Assembly. As the Bill wrongly covered ground which was the exclusive jurisdiction of provincial legislatures, it could not proceed beyond the stage of the Select Committee. But the principles which came to be admitted by the Government of India as applicable to Muslim intestate property may be noted here.

The proposition was that the property left behind by a Muslim dying heirless, (in British India, a jagir is treated as property of the holder) should devolve on the Muslim community and should be utilized exclusively for the benefit of the Muslims. The Government representative, the Hon'ble Sir Nripendra Sarkar, the Law Member, admitted the claim. Said he, '*I quite agree that, according to the Muslim Law, it is not the case of escheats, but that the last heir, instead of being a particular person, is the Muslim community. In that sense, I have not raised any question about it*'. (Legislative Assembly Debates, Vol. V—No. 6, Page 1413). The Law Member's contention was that the Bill should have more appropriately been introduced in the provincial legislatures.

What is of importance here is the admission made by the Law Member on behalf of the Government of India that *properties of a Muslim dying intestate including jagirs (in British India, jagirs and grants of land are treated as personal property,) and without any heir cannot devolve on the Crown, but on the Muslim community.*

The other principle which came to the fore during the discussions in the Central Assembly concerned the administration of such properties; and in this connection the principle as explained by the late Mr. Justice Syed Ameer Ali in his *Mohammadan Law* at p. 147 was taken to decide the point. Says Mr. Ameer Ali, "It is clear, therefore, that the British Government in India is not entitled, under the Mohammadan Law, to the property of the Musalmans dying heirless and intestate in that country. The claims advanced on its behalf are consequently not warranted according either to the Shiah or to Sunni doctrines. The only ground on which the claim could be based would be that the property would remain *in Trust* in the hands of the officers of Government for the benefit of the poor. But the Musalman Law insists that such property should be applied exclusively to the benefit of the Muslim poor".

MYTHOLOGY OF THE ARABS BEFORE ISLAM*

BY

Muhammad Abdul Mu'īd Khan

THE faith of Islam has been interpreted in various ways. Some scholars have explained it in the light of the Philosophies which have crept into the Islamic literature. Others have described the historical environment in which Islam took its birth, developed and prevailed. A section of the latter school holds that the conception of the unity of God is due to the nature of the Arabian country. Some of them go so far as to say that it is derived from Jews and Christians. There are still others who think that the conception of the oneness of God is not a new thing for the Prophet Muhammad, (Peace be on him). He has raised only the status of one of the deities which were already worshipped in Arabia before him. But my investigation into the mythology of the Arabs leads me to say that the doctrine of the unity of God is not in the nature of the country as it is maintained. The country, if it has anything to do with it, has only compelled them to worship the stones, green trees and animals. It is also wrong to say that the unity of God is a traditional doctrine of Jews and Christians. Every one, be it Persian, Indian, or European, does realise the existence of some supreme being when he worships the objects of nature believing that they represent some aspect of God or other. Every man whether he is in a savage state or civilized, whether he is a scientist or a man of letters, whenever he turns over the pages of history and biographies, whenever he strives to learn the reality of heat and light and whenever he finds himself intoxicated by the soft tunes of music, feels the existence of a creator. This does not require any demonstration. For the existence of God is not a material object which can be analysed in a laboratory. The belief in the existence of God, therefore, is an intuitive feeling of every human-being and not borrowed by any nation. It is not, however, enough to prove that some sort of being exists. The only thing that matters is the character of the being. It is here that religions differ. Some religions believe in polytheism which represents the early stage of human society in which a savage worships every agreeable or fearful object of nature. Such religions can be traced in the *Zendavesta* of Iran, the *Vedas* of India and the *Iliad* and the *Odyssey* of Europe.

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There are religions which being once monotheistic have undergone the influence of polytheism. The examples of such types of religions can be traced in Judaism and Christianity. Even in Islam some Muslim sects have produced a literature which shows how the Aryan people interpreted Islam in the light of the Zoroastrian dualism and the Greek tri-theism. The way to bring back these religions to their original ideals is to study them scientifically. The scientific study lies in analysing each religion according to the established stages of religious mentality. It is for this reason that I felt the necessity of tracing the Arabian mythology which had not so far been studied.

Mythology is a modern subject of study. The study of myth in Europe was hardly considered scientific in our modern sense until nearly the end of the 18th century. In the eastern literature it is rarely studied even to this day. That is why we are not only to collect and criticise Arabian myths, but we are obliged to explain the stages which are supposed to be inevitable in the evolution of the human mind.

The term 'ancient Arabs' will be used in this thesis to denote the pre-Islamic population of the Hijaz and Najd. The Arabs of Syria, Mesopotamia and Yemen are not included since their ancient religion demands separate treatment. These Arabs of the Hijaz and Najd have left no archaeological remains, nor any traces of agricultural progress. Their highest achievement was the marvellous Arabic language and its poetry. None of this literature dates back to earlier than 500 A.D., whereas the inscriptions of other Semetic peoples as well as their traditions go back to more than a thousand years before Christ.

In considering the myths of a nation, we should take tradition and not history as the basis of our research. The old traditions of Arabs, as a matter of fact, were committed to paper at a very much later period, since the Arabs of the Hijaz belong to that type of culture in which the art of writing was originally unknown and knowledge or legend was stored up only in memory. What means have we, then, of learning their explanations of what they saw all around them? How are we to define the exact nature of their gods seeing that Arabs themselves have left no remains? The Muslim chroniclers disdained to pen accounts of the Arab paganism; and the orientalisists have declared that the Arabs have no plastic imagination and therefore no mythology. Moreover it is not possible to define the extent of the period of the 'Jahiliyya' before Islam; nor it is an easy task to draw a line of demarcation between the vague memories of the wandering Bedouin period and the spreading of the settled spirit of Islam.

Mythology of the Arabs before Islam

Not only because the Arabs are conservative by nature but also because the spirit of an age cannot be limited to any certain period of the 'Jahiliyya' which according to Arab tradition means the heathen or pagan rites and rituals rather than the pagan period, these rites which were practised during the life of a prophet differed from what were observed after his death. Thus 'Jahiliyya' meant not an age but different periods of pagan practices. That is why I make my starting point the conquest of Mecca and extend backwards to the appearance of "Adnan" the ancestor of the northern Arabs. This conquest may also be regarded as a land-mark in the spread of the spirit of Islam.

To add to the difficulties, myth is a primitive attempt to explain the relation of man to the universe. We shall consider it neither as a "disease of language" nor as "history in disguise" as is the fashion with some writers. We shall aim to study it as a piece of pagan literature. It, thus, covers a vast field of savage life, be it religious or social. It rises and develops along with the evolution of the human intellect among primitive peoples. It is so ancient in its growth that it is difficult to decide whether the myth is derived from the ritual or the ritual from the myth, especially when we are dealing with a nation like the ancient Arabs who remained un-lettered even in the historic period. At any rate, there are myths which give rise to ritual as well as ritual which produce secondary myths.

In view of the lack of historical sources, it has been necessary to trace the intellectual development of the ancient Arabs by two methods—either the comparative or the psychological. Using the comparative method it was necessary to follow the steps of those mythologists who divide the myths of a nation into what they describe as animism, totemism, polytheism, and monotheism. Here we have tried to point out the probable doctrines of the primitive Arabs by comparing the different traditions and by seeking help from historical facts and religious explanations referring now and again local manifestations to special tribal traits.

Dealing with the problem by the psychological method one of the perplexing issues was to find out whether the Arabs were endowed with any sort of imagination such as gives rise to a mythology. I have, therefore, tried to elucidate Arab mentality from the nature of their own traditions. If what I have deduced from an analysis of the Arabs' intellectual tendencies is correct, one may venture to say that not only were the Arabs materialistic by nature but also most of their ideas and ideals were concrete;

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that is why they never personified any concrete object so as to make it an abstract idea. The similes and metaphors in the old poetry show no romantic tendencies. Their poetry and prose is full of beautiful descriptions and charming scenes from actual life-like drawings of some realistic painter who pictures the bare facts of nature without any touch of his own imaginations. It is here that they manifest their characteristic national imagination as against the Aryan. The Aryan mind generally longs for speculation, obscurity and fancy. Their Gods love what is mysterious and dislike what is evident. Chadwick has rightly said that "It is clear enough at all events that the Irish and British sages, the felids and the bords shared the feelings of the Indian Gods in their love of the mysterious and dislike of what is evident." In the early Arabic literature we do not come across a mythical being like the Centaur of Iliad and a man with thousand eyes of the Rigveda. This imagination is characterised by its overwhelming visual ideas which hold so conspicuous a place in the development of the Arabic myths. In other words, reproductive (realistic) imagination has played a great part in shaping the Arabian mythology. It is only through the visual or reproductive imagination that the Arabs mythology can be properly studied.

Dealing with the theory of animism in Arabia we are faced with another difficulty. It has already been said that the Arabs had no idea of the abstract. It may be proved by illustrative historical quotations that the meaning of the spirit and the spiritual was foreign even to the Arabs of later times. How, then, are we to explain the worship of trees by the Arabs and their belief that men were metamorphosed into stones and animals? It is true that they never thought of the soul and its eternal character, but this does not mean that they never differentiated between life and death or between animate and inanimate objects. To them as to their early Chaldean brothers, the test of the manifestation of life was movement, and in the mythical tales of the Arabs, the spirit appeared in the shape of a bird (الها مة) they perceived this manifestation of life both in organic and inorganic nature. Thus animism in this sense is clearly recognised in those rituals of the Arabs which were associated with date-palms, sacred stones, either natural or produced by some metamorphosis. The existence of animism in Arabia becomes a hard fact when we come to know that the Arabs worshipped a lot of fetish objects which are nothing but a reaction of animism.

Coming to totemism we are faced with even more difficult questions. Totemism is a social bond among almost all primitive

peoples, but we do not come across such as social bonds among the Arabian tribes. The evidence which G. A. Wilkin presents to prove exagomy and the matriarchal origin of Arabian tribes is not unanimously accepted; not indeed is it altogether satisfactory. Arabian traditions, even at a very much later period, show that the Arabs preferred endogamous marriage to exogamous, or at any rate, they did not adhere exclusively to either of these two methods. With the spread of polygamy they had an artificial ritual for indicating the father of a new-born child. In view of such historical details of ritual we cannot agree with the hypothetical proposition that the Arabian tribes arose from a matriarchal origin. It is useless for us to lay much stress here upon the matriarchal origin of the Arabian tribes, since the proof of matriarchal origin depends upon proof of totemism and not *vice versa*; for it has been truly said "That neither male nor female descent was more primitive than the other, one tribe might begin with male one with female descent; no body can prove that it was not so."

Totemism in its religious aspect, can be traced to remote Arabian tribes. Animals were supposed to help the people in their needs. The Arabs sought omens from birds and animals. They named their children after beasts just as many savage peoples do even now. These facts along with many other myths and rituals, support the conclusion that if it is necessary for savage people to pass through the stage of totemism, the Arabs also passed through a stage of religious totemism. Even in its religious aspect the totemism of the Arabs seems to be different from that of the Austrial savages who worship animals believing them to be related to the spirits of their ancestors. On the other hand the Arabs worshipped animals just as shepherds do for the multiplication of the supply of milk and meat. So far as we know, we have no direct proof that the Arabs believed that they were descended from animals as the totem tribes of Australia and Africa; but by analysing the Arab conception of the Jinn who appeared to them in the shape of animals, it may be said that there might have been a time when the Arabs saw some relationship between men and beasts, since some Arabian tribes and individuals are said to be descendants of Jinn. But it is one thing to say that a few individuals are descendants of Jinn, and another thing to say that they are all to be explained from totemism. The idea of Jinn in Arabia is traced to have originated from fearful places and injurious animals and objects. Thus a Jinn was supposed to be a dreadful object while totem was friendly. Moreover, some scholars regard the conception of

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Jinn in human form a foreign element in Arabia. Therefore a Jinn was not originally a totem, but it may be said that the sanctity of totem animal was mingled with the foreign conception of Jinn in later times. In short, the Arabs worshipped living animals and sought their help for the increase of their herds, but they never took them to be their ancestors as totem tribes do. From such pieces of evidences it can be concluded that the elementary principles of totemism in its religious aspect are to be found among the primitive Arabs. So the theory of totemism as explained by Frazer, who regards it a magical system for multiplication of the herds can be applied to the so called Arabian totemism.

Turning to Arabian polytheism, we find that the chroniclers entertain almost all theories as to the origin of idolatory, especially the theory of ancestor worship which is very often spoken of by Muslim chroniclers. The myths invented to explain local deities and even the foreign gods which were worshipped in Arabia proper do not support this prevailing idea. The mythical stories of these chroniclers lead us to the conclusion that in actual practice they worshipped nature and not their ancestors. Arabian idolatory may be divided into two kinds. The first of these is local idolatory which is a characteristic representation of Arabian visual imagination. The Arabs begin with the worship of wells, green trees and mountains, even the worship of sacred stones. Even though these objects were only the necessities of nomadic life, they were never worshipped with the idea that they were the embodiment of their spiritual creators; but to them they were false representations of their superstitions. They honoured them in the hope of multiplying their supply in some magical way. They even worshipped the foreign deities for the same reason. They obeyed the omens which were derived from sacred stones, places and things, if they fell in with their opinions, but they went their own way if the omen was disagreeable to their notions. Also the tales which the Arabs relate about such local deities give us no idea of their being supernatural. All that we can comprehend from their mythical stories about them, is that they worshipped sacred trees, sacred wells, their sacred ground for some advantage or other; and they exalt the mountains, because of events which had occurred in their vicinity. Thus the myths which arose under such circumstances never soar beyond visual imagination. They are, therefore, confined to the social life of the day. Its mythical language is not rude and defective but it is a good handling of verbal interpretation. This trait is common to the Arabs who are fond of playing

upon words. The Arabian traditions relate that they began to worship not every kind of stone but those which made some striking appeal to their eyes. This confirms our deduction that the primitive Arabs mentality was confined to reproductive imagination. This is quite in agreement with their myths and rituals. They named the mountains “Dog’s head” (رأس الكلب) Sheep’s head (رأس الضأن) They worshipped stones like (ذو الكعبين) “he who has two hands” and (ذو الرجل) “he who has one foot.” Concerning these stones, Noldeke says “Perhaps these names may have been originally applied to sacred stones or fetishes which by means of rude carving were made to bear a partial resemblance to the human form”. Similarly there was another idol called “Fals” which is said to be ‘a red nose between the famous hills of the tribes of Tai,’ and it appeared to them like a statue of a human being. This is more than enough to reveal the traits of the Arabs imagination and the same is the case with regard to their making of myths which are products of such imagination. To illustrate, this it may be said the Qaiqan (فيقان) (That which rattles) is named for the reason that Mudad-ibn-Omar, a mythical person, came to that place with the rattling weapons of his army. Such are the stories related about Ajcad (أجداد) and Mutabekh (مطابق) Similarly they say that a certain mountain is called Thabir (تعبور) after the name of a man from the tribe of Hudail. Among mythical mountains is Abu Qubais (أبو قبيس) a hill near Mecca and Aja (أجا) Salma (سلمي) and Awja (أمو جاء) famous hills of the tribe of Tai which are known to be men and women. Every one of them is specially associated with a certain event which is supposed to have occurred in their neighbourhood. These events are no production of their imagination but are derived from the meaning of the word which is applied to them. The same is the case with those myths which explain the names of sacred wells such as Akssef in the “Kaba” and sacred trees like Dhat-e-nawar. These places were so sacred that they exercised a great influence over the social life of the primitive Arabs whose tribal ware were chiefly based on the rights of wells and pastures. The deeper we go in search of such places, the nearer we are to the origin of their mythical system which is of a type peculiar to them among Semetic nomads.

It is now time to turn to the foreign deities which are enthusiastically received in Arabia proper. It is rather difficult to determine the exact date of their entry and the events which helped to spread foreign influence in Arabia but it cannot be

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doubted that Babylonia was one chief centre for the importing of idols into almost all parts of Arabia. Thus a recognised historian writes "a glance at the meagre array of facts made known to us reveals the basis of the religious conceptions of the Semetic tribes in Arabia to be almost the same as that of the Semetic tribes in Syria or those by the Euphrates and Tigris". In addition to this, the Arabic word "Sanam" which means idol was originally derived from Aramean (سنام) Salm. In like manner some of the mythical stories such as the dream of the king "Tubba" bears a resemblance to that of Isduber which is related in one of the Epic poems of Babylonia. This and many other resemblances between Arabian and Babylonian primitive beliefs lead us to think that Babylonia and Palestine played a great part in uplifting Arabian views from a nomadic state to an agricultural conception. This means that the Arabs in the stage of imitation, followed the conceptions of the agricultural idols of either Syria, Palestine or Babylonia. It is curious to find that the Arabs of the Hijaz and Najd did not differ from the Yemenites only in language and culture but also in their cult, for the cult of foreign idols also was directly borrowed from northern peoples. At any rate, this age which may be roughly said to begin after the annihilation of the dam of "Mareb", is the beginning of a new era in Arabian idolatry, because the Arabs in this age began to assimilate foreign doctrines instead of following their own mythical tendencies. This will be clearly perceived if we set before us some of the idols of such origin. Nevertheless, be it remembered that we are not going to set forward "Rubbish heaps of divine names" as Wellhausen calls them. Our function is to find out what the Arabs thought of the foreign idols whose cult was prevalent in Arabia before Islam. Some of the idols are:—

Hubal: Almost all scholars are of the opinion that Hubal in Arabia corresponds to Baal of Palestine or Babylonia. Baal in Babylonia was originally a rice God and then a solar deity and in Syria he was protecting God of the harvest. In Arabia he was placed on a sacred well in the Kaba. The Arabs used to seek his help in search of water. Baal in Arabia is applied to land watered but not cultivated. This notion corresponds to that prevalent in Syria and Babylonia. As regards its original home we have very strong reason for believing that he is a foreign deity. Arabian tradition says that he was imported from Syria. The Arabs themselves regarded him as a foreign deity when they said that the Qoraish found the idol with a broken hand. Orientalists and mythologists admit that Baal is a loan word in Arabia.

Mythology of the Arabs before Islam

Next to Hubal is Ul-Uzza. She corresponds to the Babylonian Ishtar who answers to Aphrodite in Greece. Ishtar symbolised the spring season and festivity in Babylonia: in like manner Uzza was originally related to the spring season in Arabia and later on she was worshipped as a morning star, "Venus".

Al-latu or Arabian Allat is also a Babylonian goddess. She appears as the Queen of Hades in the epic poem of Isdubar. She becomes a solar deity among the Nabateans. Thus through Nabateans her worship enters Arabia. The Arabs also like the Nabateans call her "the Mistress of the house", The Bedouins also looked to her as a solar deity or a goddess of the summer season. There is another mythical explanation of this deity but it seems to be secondary and a later interpretation.

Manath, is another Babylonian goddess of fate. She was worshipped in Arabia just in the same sense, but her cult was mingled with that of an old Arabian deity which was called "Mina." Wadd: some scholars compare him to the Eros of the Greek, but in Babylonian literature it is one of the epithets of Marduke, who is the beloved of Ishtar. Wadd was worshipped in Yemen as a God of the moon and in Arabia as a God of love.

Kozeh is an Idumaen God. It corresponds to Appolo of Greek. It was worshipped in Arabia as a God of rain and lightning.

It is now time to turn to the Arabian conception of God. It is generally supposed that the Arabs by nature were monotheist. When we read the Old Testament and the old Arabian traditions, we are told that Israelites as well as Ismailites used to believe in the oneness of God from the beginning, but if we turn to the old north Semetic inscriptions, we find on the contrary that early Semites were polytheists. Arabian poetry leads us to think that a supreme God "Allah" before the time of Mohammed (Peace be on him) was accepted and worshipped after a fashion; whether this Allah was an abstraction or a development from some individual God such as Hubal or Al-lat is one of the unsolved questions among the scholars of the Arabic literature. Wellhausen takes him to be another epithet of the supreme God Hubal, while others regard him a supreme and abstract deity. In consideration of such a conflict of views, it is convenient to discuss it under the following headings:—

(1) conception of God in the pre-historic period.

(2) conception of God in the historic period.

Pre-Historic information concerning the word "Ilah" is very scanty. Inscriptions can supply us no more information

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than that the word "Ilah" had been in use for a long time. Thus the hypothesis that "Allah" is a development of Hubal or Al-lat is foundationless. All that we can infer from the meaning of the word is that it meant a supreme being and it was later applied to each deity as an epithet.

Arabic legends and historic traditions help to understand what they really thought of this supreme being. Ismailites like Israelites may have believed in one supreme God in some remote time, but the legends of later Arabs denote that they took this God to be "Time" or "World" (الدهر) whose function is to destroy and to bring calamities and troubles. Hence he was not supposed to be an abstract being but one of a hundred deities whom they worshipped. Their social condition also did not reach the position or stage which leads to the conception of the unity of God. Speaking plainly, the Pre-Islamic Arabs in general had some vague notions about the cause of all causes. They somehow or other, attributed the powers of destruction to the almighty world; but their mentality had not developed upto the stage of analysing this conception into light and darkness as it had been done by Babylonians and Persians. When Judaism and Christianity appeared in Arabia, the views of Jews and Christians began to exercise a great influence on their minds. Consequently their beliefs in idols of nature began to change yielding place to the idols of human being.

Turning to their beliefs about creation and life after death, some of their legends denote that they really believed in "Mother Earth" (ام الارض) and almighty world as the only powers of creation and destruction. As to their beliefs in life after death, it is an admitted fact that they had no idea of any other world.

The long and short of it is that the pagan Arab was a materialist. His ideas and ideals were concrete; his polytheism is a foreign element; his creator was earth and his destroyer the world. (الدهر) Here comes the conquest of Islam and this materialist appears in quite a different mould. It is really a miracle of Quran to convert such a materialist into a staunch monotheist. Is it not a wonder that by changing the names of his companions which bore the meaning of animals, the Prophet, (Peace be on him), has put an end to the conception of totemism and by forbidding prayer at sunrise and sunset he has eradicated the remotest possibility of Polytheism? Such achievements of Islam would not have been realised, had we not studied the religious mind of the Pre-Islamic Arab.

THE TATIMMATU ŠIWÁNI'L-HIKMAH OF
ABU'L-ḤASAN 'ALÍ B. ABI L-QÁSİM
ZAYD AL-BAYHAQÍ (A.H. 565)

BY

Qari Sayyid Kalimullah Husaini

MUCH has been written regarding the losses which the Persian Literature suffered by the horrible Mongol invasion of Persia. The works that survived the catastrophe are very rare, and for the most part very valuable. Among these is the *Tatimmatu Šiwáni'l-Hikmah*. This book is very important as it furnishes certain literary information which is not to be found elsewhere.

It has so far been held that the earliest notice of 'Umar Khayyám was to be found in the *Chahár Maqála* (A.H. 550-552) of Nidhámí 'Arúdí Samarqandí. This was stated by Professor Browne in his *Literary History of Persia*,¹ and by 'Alláma Mírzá Muḥammad Khán Qazwíní in his preface to the *Chahár Maqála*.² The Alláma asserted that the account formed one of the principal features of the *Chahár Maqála*.

The famous Russian orientalist Valentin Zhukovski in his excellent article on 'Umar Khayyám and "the Wandering Quatrains"³ was of opinion that the *Nuzhatu'l-Arwáh* (586-611 A.H.) of Muḥammad b. Maḥmúd ash-Sharazúrí contained the earliest account of Khayyám.

But it was discovered by me, during my researches in the European libraries (1928-30) that the *Tatimmah* contains the earliest account of 'Umar Khayyám, as it precedes *Chahár Maqála* by two or three years. We shall discuss this later on.

Although the celebrated poet Kháqání makes a mention of Khayyám earlier than even the *Tatimmah*, in an elegy, in which he mourns the death of his uncle Káfiud-Dín 'Umar b. 'Uṭhmán,⁴ yet there is nothing in it more than a mere mention of his name. The *Chahár Maqála* too does not give more than two or three

¹ Lit. Hist. Pers. Vol. II, p. 214.

² *Chahár Maqála*, pp. 219.

³ *Al-Muzaffariya*, English translation, J.R.A.S. 1898, pp. 349-366, *Chahár Maqála*, Notes, p. 211.

On the 25th anniversary of the professorship of the celebrated Victor Rosen, Professor of Arabic in the University of Petersburg, Russia, his eleven pupils contributed valuable articles on interesting oriental literary subjects, which were presented to him in the form of a book named after him (Victor) "al-Muzaffariya" as a token of their regard for the Professor. Valentin Zhukovski was one of these pupils.

⁴ *Kulliyát-i-Kháqání*, p. 601; *Hadá-Yaqus-Sihr*, edited by Aqa 'Abbás Iqbál Áshtiání, Tehran, p. 21

Arwáh wa Rawdatul-Afráh fi Táríkh-i-Hukamáil-Mutaqaddimín wa'l-Muta'akhirín¹. This book is divided into two parts; in the first part² the author has described "the ancient philosophers," like Thales, Pythagoras, Socrates and others, and ends with Galen; in the second part³ he has mostly described modern "authors" rather than "philosophers." He begins with Hunayn b. Isháq, and ends with Abu'l-Futúḥ Yahya. As we are going to prove immediately, the whole part dealing with the "modern philosophers" of the Nuzhatu'l-Arwáh is reproduced from the Tatimmatu; but Shahrazúrí gives not the slightest indication that he is in any way indebted to any other author.

This plagiarism is of a similar nature to that committed in the Táríkh-i-Ṭabaristán, which plagiarizes from the Chahár Maqála,⁴ so too does Bazm Ára from the Lubábu'l-Albáb,⁵ as also does al-'Uráda fi-Hikáyáti's Saljúqiyya from the Ráhatu's-Şudúr.⁶

Shahrazúrí did not even name our author among the learned men of Bayhaq, whom he describes in his Nuzhat, although our author was one of the greatest men of his time, a native of Bayhaq, and an author of a great number of valuable works. It is obvious that he deliberately avoided a mention of him. Had he mentioned him he must have mentioned his books as well, and so the real origin of the Nuzhat would have been discovered, the danger being the more likely in that he lived well within a century of our author's time.

We have compared both books and found only very slight variations in the text here and there, our author's arrangement and the very words he uses are reproduced almost throughout the work. The only difference is that in places, Shahrazúrí omits, and sometimes cuts short the long and repeated titles, which our author is accustomed to set forth in full. In some places we find not only verbal changes, but changes in the construction of sentences as well, and at others he introduces a few words or sentences of his own.

His plagiarism is quite clear where our author mentions either himself or his book and says, for instance, "I have seen a certain book," "I have stated a fact in my book," "I heard from so and so," or "so and so told me;" here Shahrazúrí either omits

¹ Cat. Ar. MSS. Berlin Lib. MO. 217. I have dealt with this briefly in my article which was printed in the *Osmania Magazine*, December 1931, Vol. IV, pp. 201-14.

² *Nuzhatu'l-Arwáh*, ff. 1-141a.

³ *Ibid.*, ff. 141a-195a.

⁴ *Chahár Maqála*, preface, p. xiv.

⁵ *Lubáb u'l-Albáb*, Vol. I, p. 6.

⁶ *Ráhat-uş-Şudúr*, preface, pp. xxxiv, xxxv.

these things, or substitutes "a certain historian relates," "a certain book states" or some similar phrase of his own, and then rigidly keeps to the text.

In support of this statement I may quote here a few parallel passages from different parts of the books, which will make the fact clear:—

نزهة الارواح	تتمة صوان الحكمة
حنون ٢ بن اسحق المترجم كان اول من فسر اللغة الهو نانية ونقلها الي السريانية و العربية ولم يوجد في هذه الا زمرة بعد الا سكندر ٣ اعلم منه بالغة العربية والهو نانية و كان في عهد الما سون والمعتمصم كان بنديدي المولد وقد نها بالهام وتعلم بها و كان يدخل بيعة النصاري و يعتمد علي قوانين شريعة المسيح الشمخ ٩ الفاضل	حنون ١ بن اسحق المترجم كان اول من فسر اللغة الهو نية ونقلها الي السريانية والعربية ولم يوجد في ٣ هذه الا زمرة بعد الا سكندر ٣ اعلم منه بالغة العربية والهو نا نية و كان حنون في عهد المامون ٥ والمعتمصم ٦ وكان بنديدي المولد و قد نها بالشام وتعلم بها و كان يدخل بيعة النصاري و يعتمد علي قوانين هريفة عيسى عليه السلام الشمخ ٨ ابو نصر الفارابي هو

١. تتمة صوان الحكمة ، ورقة ٢ ب
٢. نزهة الارواح ، ورقة ١٢١ ب
٣. "في" بنسخة بهيرافا وملا مراد وفي الاصل بخذفه
٤. الا فروديسي بنسخة لادن في الاصل ناقص كذا "الو" الاسكندر (م ب)
٥. المامون عهد الله ابو العباس ابن الرشيد الخليفة ، توفي سنة ٢١٨ هـ ، تاريخ الخلفاء للسيوطي ، ص ٣١٠
٦. المعتمصم بالله ابو اسحق محمد بن الرشيد الخليفة توفي سنة ٢٢٧ هـ تاريخ الخلفاء ص ٣٣٩
٧. تنها (م) منها (ب) (٨) موسي (ب م)
٨. تتمة ، ورقة ١١٠
٩. نزهة ، ورقة ١١٣٦

تنمة صوان الحكمة

نزهة إلا رواج

محمد بن محمد بن طارخان من فاراب
تركستان وهو الملقب "بالمعلم الثاني"
ولم يكن أفضل منه من حكماء الاسلام
وقبل الحكماء اربعة، اثنان قبل الاسلام
وهما ارسطو والا سكندر، واثنان
في الاسلام وهما ابو نصر و ابو علي
و كان بين وفاته و ولا دة
ابي علي ثلثون سنة، و كان ابو علي
تلميذاً لتصانيفه -
عضد ٣ الدين -

محمد بن محمد بن طارخان من فاراب
تركستان وهو الملقب "بالمعلم الثاني"
ولم يكن أفضل منه من حكماء الاسلام
وقبل الحكماء اربعة، اثنان قبل الاسلام
وهما ارسطو والا سكندر، واثنان
في الاسلام وهما ابو نصر و ابو علي
و كان بين وفاة ابي نصر و ولا دة
ابي علي ثلثون سنة، و كان ابو علي
تلميذاً لتصانيفه -

الملك ٢ العادل عضد الدنيا
و ا لدين علاء الدولة فرامرز
بن علي بن فرا مرز، ملك يزد،
كان ملكاً عادلاً عالماً، رأيت
بخراسان سنة ست عشرة و خمسمائة

وكان عرض علي والدي تصنيفه الذي
سماه مهجة التوحيد، و كان يذب
عن رأي ابي البركات بن ملكا ٣
الطبيب البغدادي، و يقرر ٥ قوله
في مسئلة العالمية
الدستور ٦ الفيلسوف حجة الخلق

١. فاراب بنسخة بمكتبة بشير آغا، وفي الاصل فاراب خطأ لا نه
بخراسان وهو مسقط الرأس الشاعر الفارسي ظهور الفارابي

٢. تنمة ورقه ٢٥ ب

٣. نزهة، ورقه ١٥٥

٤. في الاصل ملك، ملكا (م)

٥. لقرر (١) يقرر (م)

٦. تنمة، ورقه ١٢٢

نزهة الارواح

عمر ١ الخيامي الفيسا بوري
 الا بناء والا جداد ' و كان
 تلو ابي علي في اجزاء علوم الحكمة
 الا انه كان سمي الخلق
 ودخل حجة الاسلام الغزالي عليه بوماً

 و سأل عن تعيين اجزاء من اجزاء
 القطبية مع كونه متها به

 ٣ فاطال الا امام عمر الكلام وابتدا...
 ابو ريحان ٦ محمد بن احمد
 البهروني ' و بهرون مدينة
 بالسند ' وكان من اجلاء المهتد سمين
 وقد سافر في طلب العلم في بلاد الهند اربعين
 سنة ' وصنف كتبها كثيرة
 وله مناظرات
 مع ابي علي
 محمود الخوارزمي ٨ كان والده وزير
 قسرو هرتكي استرلي علي خوارزم
 وكان محمود حكيماً اديباً فاضلاً
 من ثلاث مئة ابي البركات

تتممة صنوان الحكمة

عمر بن ابراهيم الخيام ' كان نهما بوزي
 المهاد والا بناء والا جداد ' و كان
 تلو ابي علي في اجزاء ٢ علوم الحكمة
 الا انه كان سمي الخلق
 ودخل عليه يوم ما الا امام حجة
 الاسلام محمد الغزالي
 و سأل عن تعيين اجزاء الفلك
 القطبية دون غيرها مع ان الفلك متها به

 الا اجزاء ' وانا قد ذكرت ذلك في
 كتاب عرائس المنفاكس من تصنيفي
 فاطال الا امام عمر الكلام وابتدا...
 الحكيم ٣ ابو ريحان ٥ محمد بن احمد
 البهروني ' كان من اجلاء المهتد سمين
 وقد سافر في بلاد الهند اربعين
 سنة ' وصنف كتبها كثيرة ورايت
 اكثرها بخطه ' وله مناظرات
 مع ابي علي
 محمود الخوارزمي ٧ كان والده وزير
 قسرو هرتكي استرلي علي خوارزم
 وكان محمود اديباً فاضلاً كاملاً
 استفاد من الحكيم ابي البركات

٢. اجراء (١) جزاء (م)

٣. تتممة ورقه ٣٨ ١

٤. نزهة ' ورقه ٩٠ ١

٥. نزهة ' ورقه ١٧٠ ١

١. نزهة ' ورقه ١٥٩ ١

٣. تتممة ٦٧ ب

٥. كذا ' لعله ابو الريحان

٧. تتممة ' ورقه ٩٠ ١

..... رأيتهم مرو في شهر سنة تسع
 عمرو خمسمائة فاستولي عليه
 نوع من السردا نوع من السردا

If the *Tatimmatu* had not been in existence nobody would have suspected otherwise. This was really the case up till now, and the original being very rare, *Nuzhat* enjoyed a good deal of popularity and had been utilized by later authors.

Nuzhatu'l Arwāḥ was translated into Persian by Maqṣūd 'Alī Tabrīzī by the order of the Emperor Jahāngīr in A.H. 1011, and was named *Tārīkh-i-Hukamā-i-Salaf*.¹

Like *Shahrazūrī*, Muḥammad b. Abī'l-Wafā al-Ma'rūfī² also borrowed the life of Avicenna from the *Tatimmatu*, but he was polite enough to acknowledge his indebtedness to its author.

It is also noteworthy that not only *Shahrazūrī* and al-Ma'rūfī have copied from the *Tatimmatu*, but the great author Ibn Khallikān has also borrowed from the *Tatimmatu*, in the *Wafayātu'l-A'yān*,³ the biography of Avicenna in particular and clearly acknowledged the indebtedness to its author.

The *Tatimmatu* also gives important sketches of great authors, philosophers and other men of letters, such as Abū Sulymān Ṭāhir b. Bahrām as-Sijistānī,⁴ 'Abdu'l-Karīm ash-Shahristānī and Abū Naṣr al-Fārābī etc.

In my opinion the *Tatimmatu* contains the earliest account of Avicenna as well. This covers about 31 pages of it. The material is authentic, as the author lived about half a century after Avicenna's death, and got the material from direct sources. He had seen some of his rare works, such as *al-Muqtaḍiāt* and *Ḥayy b-Yaqqḥān* etc.

MSS. OF THE TATIMMATU ŞIWĀNĪ'L-ḤIKMAH

So far as we know there exist six MSS. of the *Tatimmatu*, one in the Berlin Library,⁵ written in a neat Naskh with golden lines

¹ Supple. Cat. Pers. MSS. Bri. Mus. No. 100.

² Cat. Ar. MSS. State Lib. Berlin, Pm. 600, f. 33 a.

³ *Wafayātu'l-A'yān*, Tehrān edition, Vol. I, p. 179.

⁴ Āqa Mirzā Muḥammad Qazwīnī wrote an excellent article on Abū-Sulaymān as-Sijistānī and his *Şiwānu'l-Ḥikmah*, printed at Chalon Sur-Saone, France, and published by the Société Des Etudes Iraniennes, 1933, in which he referred to the *Tatimmatu* too. He makes a mention of the information he got from me about the *Tatimmatu* and its Mss. when we had met in Paris, in 1929, and had a talk on this subject. The article is later published in *Bist Maqāla of Qazwīnī*, Vol. II, pp. 89, 101.

⁵ Ahlwardt, Cat. Ar. Mss. Berlin Lib. Pet. II. 737.

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in the margin, folios 99. It begins with the biography of Hunayn b. Ishāq, and ends with the account of Zaynu'd-Dīn al-Jurjānī.

The second one, in the Leyden Library,¹ comprises an abridgment from the *Tatimmah* by Abū Ishāq Ghaḍanfar at-Tabrízī. After the abridgment he adds a supplement to the book, in which, 'in order to enhance its beauty', he has added some more biographical sketches of learned men, and quoted some of their verses. The *Tatimmah* ends with the biography of Zaynu'd-Dīn al-Jurjānī, and at-Tabrízī has completed his supplement with a biographical notice of Shihābu'd-Dīn Suharwardī, and quoted some of his verses. Further, we learn that the book was transcribed in the year 692 A.H. by the copyist Ibnu'l-Ghulām.

One of the three MSS. of the *Tatimmah* in the Istambúl libraries, is the MS. in the library of Bashír Ághá² which was transcribed in 689 A.H., folios 167. In this MS. some other author³ adds a supplement.

The other MS. in the Library of Mullá Murád⁴ was transcribed in 639 A.H., folios 157.

Another MS. in the Library of Muḥammad Pasha Kupreli Zadeh (No. 92) folios 215, has no date but by the paper and handwriting it seems to have been transcribed in the eighth or ninth century of Hijra.

All these MSS. of the *Tatimmah* are written in Naskh and are bound in one volume with an abridgment from the *Šiwānu'l-Ḥikmah* of Abū Sulaymán Muḥammad b. Tāhir b. Bahráw as-Sijistānī in the beginning and a supplement to the *Tatimmah* in the end.

I knew nothing about these MSS. before, except their names that were mentioned in the catalogues of the abovenamed libraries. But when I left England for India, fortunately, I had an opportunity of visiting Istambúl, where I perused the MSS. and collated my copy of the Berlin MS. of the *Tatimmah* with them.

A MS. of the *Tatimmah* is also preserved in the Library of Mashhad, Irán. I came to know about this MS. when I visited Irán in 1930. This MS. is stated to have been completed by the

¹ Dozy, *Cat. Ar. Pers. Turk. Mss. Leyden Lib.* Vol. II, p. 292, Cod. 133 d. Gol.

² *Cat. Lib. Bashír Ágha*, p. 35, No. 494.

³ His name is not given but I think it is Abū Ishāq Ghaḍanfar, whose name appears in the catalogue of Leyden Library, and who has written a supplement to the *Tatimmah*.

⁴ *Cat. Lib. Mullá Murád*, p. 115, No. 1431, but on the Ms. itself the number 1408 is written.

⁵ *Cat. Mushad Lib.* Vol. III, Chap. XIV, p. 8.

The Tatimmatu Şiwání'l-Hikmah

author in Khwárazm in A.H. 599. This date appears to be wrong as the author, according to the correct information, died in A.H. 565. The MS. is written in Nasta'-líq, folios 50, and was presented to the library by Khwaja Sher Aḥmad.

The oldest, the best and the most correct of these MSS. of the *Tatimmatu Şiwání'l-Hikmah* is the one in the library of Mullá Murád in İstambúl.

So far as is known, no other MS. of the *Tatimmah*, except those mentioned above, exists now.



CHARACTER AND PERSONALITY OF
ABUL HASAN QUTUB SHĀH
(THE LAST KING OF GOLCONDA)

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ABUL Ḥasan Qutub Shāh, properly known as Tāna Shāh in the Deccan, was the last king of Golconda, who ruled from 1672 to 1687 until he was ousted by the Moghal Emperor Aurangzēb. He was one of those unfortunate monarchs, to whom history has done scant justice, and who have been wilfully misrepresented by their enemies. Abul Ḥasan fell a victim to the relentless ambition of the Moghals who coveted the rich lands of the Deccan. The kingdom of Golconda had long been marked out for conquest. But this scheme of conquest could only be justified by misrepresenting Abul Ḥasan as if he was entirely unfit to rule the vast kingdom of Golconda, so that the Emperor had every right to depose him and establish his civilized rule there. His character has been so thoroughly blackened by the Moghal propaganda that we fail to find any trace of a noble quality in his private or public life. The Moghal historians depict him as nothing but a contemptible figure absolutely devoid of any capacity for governing. Some of the statements of the Emperor and his chroniclers are so contemptuously worded that one may even doubt whether Abul Ḥasan had any right to be called a human being. Khāfī Khan, a Moghal historian of the period, calls him "a characterless wretch" and "one doomed to everlasting misery."¹ Muḥammad Sāqī, entitled Must'aid Khan, a court chronicler of Aurangzēb, applies to him such malignant epithets as "mean, sensualist, and vile."² The Emperor's own remarks on Abul Ḥasan are too hyperbolical to take in even a man of ordinary intelligence. But the Emperor with all his power of expression does not seem to be content even with the lengthy statement and because it falls short of the reality he adds "words fail me, to give in full, the heinous acts of the perverted wretch."³

As there is no local record of the period available there is no clue to the personality of the real Abul Ḥasan and it seems difficult to pierce the veil of Moghal representation, and the natural consequence is that history has never been in a position

1 Khāfī Khan, vol. II. 342.

2 Ma'āthir-i-'Ālamgiri 285.

3 Khāfī Khan, vol. II. 328.

Character and Personality of Abul Ḥasan Quṭub Shāh

to give its correct judgment of what really Abul Ḥasan was. Popular tradition represents him as a vagabond on whom the kingdom of Golconda was unfortunately thrust by Divine Providence. And it is natural, because all traditions ultimately rest on the Moghal statements. The historical books which were written late in the Aṣafjāhi period, *i.e.*, the 18th and the 19th centuries blindly follow what the Moghal historians had written. There has been no attempt on the part of the later historians to dispel the mist of propaganda and to give an unbiased judgment about the character and personality of Abul Ḥasan.

It was during the reign of Abul Ḥasan Quṭub Shāh that Aurangzēb started his Deccan campaigns with an elaborate plan of subjugating the whole of the southern country, which was then divided between the two Muḥammadan kingdoms of Golconda and Bijāpūr and that of the Maharattas. As a matter of fact there was nothing new in the policy which the Emperor pursued in the Deccan. It was a continuation of what was originally planned by Akber, the great and carried on by Jahangir and Shāh Jahān. It was nothing but a political cause. The idea which underlay the scheme was to bring all the weaker kingdoms of the north and the south under the sway of the greater Moghal Empire, and as such the policy was all in all justifiable and one may hardly doubt its propriety. But as far as Aurangzēb was concerned, he unfortunately entangled himself in a very critical situation. The Emperor was a great advocate of religion as well, and so he had to shape all his political and military activities in conformity with the Qurānic law. As far as the Maharatta power was concerned, the Emperor rest assured that he, as a torch-bearer of Islām, was perfectly justified to annihilate it. But as to the Muḥammadan kingdoms of Golconda and Bijāpūr, the Moghal policy was doubtful. It was generally regarded as anti-Islāmic, and with regard to Aurangzēb as a great champion of Islām it was rather shocking to the common belief. Moreover the Emperor's hostile attitude towards the Muḥammadan kingdoms was challenged by the eminent ecclesiastical heads of the day, Qāḍi Shaikul Islām and Qāḍi 'Abdullāl. When the Emperor called upon these religious doctors to profess to the legality of the policy, they were prompt enough to give their honest opinion, no matter it was decidedly against the best wishes of the Emperor. "Abul Ḥasan is after all a Muslim," said Qāḍi 'Abdullāh, who held the post of Head Qāḍi in succession to the former, "and therefore the Emperor's attitude towards him and the bloodshed of Muḥammadans on both the sides in consequence of that, is un-warranted by Islāmic law." But these

verdicts, contrary as they were to the point of view of the Emperor, who expected them in his favour, were not only rejected but also the theologians were exposed to royal disfavour and were required to leave the court.¹ But at the same time it forced the Emperor on the horn of the dilemma, to either adhere to the Qurānic law and forego the annexation policy, or to forego the law itself. The scheme of conquest was so dear to his heart that the Emperor was not at all prepared to forego it even at the cost of his orthodoxy. He however, tried his utmost to solve both the sides of the problem. He clung to the policy of conquest and he asserted on his own authority that the policy was entirely in harmony with the law of Islām. And in order to substantiate his assertion, the Emperor and his historians used all their literary talent to prove the government of Golconda as tyrannical and un-Islāmic and that is how they succeeded in justifying the military activities against Golconda. Muḥammad Sāqi has devoted two pages of his history in tarnishing the face of Abul Ḥasan,² and the Emperor has issued a lengthy manifesto which enumerates all the depravities, which according to his point of view, he was guilty of. Abul Ḥasan was charged with a number of the grossest misdemeanours which amounted to the breach of the Islāmic faith and as such he was not only unworthy of any toleration, but also his very existence was detrimental to the society and the cause of Islām. Khāfi Khan gives the full text of the Emperor's Fārmān which was deliberately worded, to stigmatize Abul Ḥasan as entirely unworthy of his position he so unfortunately held, on one hand, and on the other to dispel the doubts of the Muḥammadan community in general which was very suspicious of the Moghal military movement.

“Though it is not possible to give in full the heinous acts of the perverted wretch,” goes the fārmān, “yet a few out of the hundreds and a hand-ful out of a big heap can be mentioned here. (First of all) he entrusted all the powers of the community and the state to an infidel, a scoundrel and a tyrant (Madanna), and subjected the holy descendants, religious heads, and scholars to his despotism. (Secondly) he gave free licence to the public to revel in immoral and irreligious practices profusely and he himself being intoxicated with the sense of his royal authority and wealth, is given up to all sorts of excesses day and night, and furthermore he never cares to distinguish heterodoxy from Islām, tyranny from justice, and vice and immorality from piety. (Thirdly) he is persisting in his allegiance to the militant

1 Khāfi Khan, vol. II. 343.

2 Ma'āthir-i-'Alamgīrī 285—286.

Character and Personality of Abul Hasan Quṭub Shāh

unbelievers, and disobeying thereby the Divine injunctions, and especially the prohibition not to help an open enemy of Islām, which is enjoined by a clear verse of the holy scriptures, with the result that he is accursed by both the people and God. (Fourthly) in spite of instructive farmāns which were issued through the persons well versed in court etiquette and familiar with the Imperial policy, he turned a deaf ear and with open defiance, advanced a sum of a lac huns to the scoundrel Sambha (Sambhaji). And therefore it is an absurd notion and a hollow pretence for him to hope with all self conceit and megalomania, for salvation here and hereafter, without realizing his immoral acts and hateful character.”¹

This is what the Moghal Emperor thought of the unfortunate king of Golconda, Muḥammad Sāqi, being the mouth-piece of the Emperor, gives the same character-sketch of Abul Ḥasan with more exaggeration which occupies nearly two pages of his work. To analyse the farmān, Abul Ḥasan was charged with the following crimes: 1. He appointed Madanna, who was an unbeliever as a Dewan of the State; 2. he subjected the Muḥammadan community including the holy people to Madanna's non-Islāmic rule; 3. he showed perfect indifference to the fact that owing to Madanna's rule, the Islāmic laws were suspended and Hindu laws were enforced instead of them; 4. he tolerated all sorts of vices and public immoralities in the State; 5. he was given up to debauchery day and night; 6. he was in league with the Maharattas. To sum up, Abul Ḥasan was a shameful figure unworthy of any historical record. But the truth is that these statements are not based on any substantial evidence. Neither the Emperor nor his historians could cite any example in support of their assertions. Their statements appear mere figments of imagination. A critical survey of the early life and 15 years' reign of Abul Ḥasan, in the light of impartial sources as Travels and the scanty local material available, is necessary to refute the wrong charges so blindly directed against Abul Ḥasan.

Abul Ḥasan's early life is almost a mystery. Though not a direct descendant of the Quṭub Shāhi dynasty, Abul Ḥasan was, however, a member of the royal family, being a distant relative of Ḥayāt Bakhshī Begum, mother of ‘Abdullāh Quṭub Shāh. As there is no local record to show where and how he was brought up and what were his early pursuits, it is generally believed that he led an aimless and an easy-going life before he was married to ‘Abdullāh's daughter. Some of the histories represent him as

1 Khāfi Khan, vol. II. 328.

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a characterless vagabond. But these books of history, which represent him so contemptuously, were all written a century later and they seem to have blindly followed the Moghal histories without applying impartially the criterions of history. As a matter of fact there are no reliable data which might testify to the conclusions so blindly drawn. It is almost certain that ‘Abdullāh Quṭub Shāh was, at first, not well disposed towards him, and that is why his youngest daughter, who was ultimately married to Abul Ḥasan, was previously engaged to a foreigner of Arabia named Syed Sulṭān. But the reason for the strained relations subsisting between them seems to be quite other than what is generally supposed. The prejudice died down in course of time and Abul Ḥasan was after all restored to royal favour with the distinction which the other members of the royal family enjoyed.

It is curious that the histories, which describe him as a characterless vagabond, note that Abul Ḥasan was, at the same time, a staunch disciple of Shāh Raḍāuddīn, commonly known as Shāh Rāju, a great Ṣūfī and *religious* head of Hyderabad in the second half of the 17th century. The fact is confirmed by the local historians as well as by the Moghal historian Khāfī Khan, who says that Abul Ḥasan was a disciple of Shāh Rāju for 16 years before he became king.¹ As he belonged to the religious fold of the saint who wielded a wide moral and religious influence all over the kingdom—a fact which is undeniable—it is certainly unfair to call Abul Ḥasan a vagabond as Khāfī Khan so unjustly concludes. If he was, in any way, easy-going in the early days of his life, he must have been a changed man after he had joined the religious circle of the saint, in whose company he spent his days and nights. His after-life shows that the company of the saint had moulded his character and turned him a Ṣūfī, and his portrait, free from those signs of debauchery which characterize the portraits of his predecessors, also testifies to the fact that he led a pure and chaste life. The French traveller Tavernier says that Abul Ḥasan was reformed after his marriage with the daughter of ‘Abdullāh Quṭub Shāh. This statement also helps us to infer that he was, in any case, a changed man, at least before he became king. And the fact that he was preferred to Syed Aḥmad, the elder son-in-law of ‘Abdullāh Quṭub Shāh to succeed the latter after his death, is a clear proof that Abul Ḥasan was more popular among the State officials and the people, and his popularity should be attributed to his pure and healthy life.

1 Khāfī Khan, vol. II 310.

Character and Personality of Abul Ḥasan Qutub Shāh

There was an influential party of the State officials including the dignitaries as Mūsa Khan and Syed Muzaffer, who fought for Abul Ḥasan in preference to Syed Aḥmad. Had there been no support like this Abul Ḥasan was most likely to be ousted by Syed Aḥmad, who, as the elder son-in-law of Qutub Shāh, had a superior claim to the Qutubshāhī throne. This point is also significant that ‘Abdullāh Qutub Shāh did not give his opinion, as to who was to succeed him after his death. Had he been in favour of Syed Aḥmad, he was at liberty to declare his opinion to the effect. But he remained silent and it indicates that he was at heart in favour of Abul Ḥasan, and he could not venture to give his opinion in that way, because of the strong influence which Syed Aḥmad and his wife, the elder daughter of ‘Abdullāh, wielded in the central government.

The reign of Abul Ḥasan which lasted for nearly 15 years up to 1687 is as obscure as his early life. There is no contemporary record to get a clear idea of what Abul Ḥasan was as the ruler of Golconda. Whatever we gather from, is the scanty material in the form of local tradition, inscriptions and literary works of the period. The material, however, though very poor, does not fail to reveal some of the important elements of Abul Ḥasan's administrative capacity. Even the Moghal histories which purported to defame Abul Ḥasan give several traces which contradict the Moghal propaganda. Really speaking the reign of Abul Ḥasan was as peaceful and prosperous as the reigns of his predecessors. There is clear evidence that Abul Ḥasan was fully qualified to conduct the domestic and the foreign policy of the day as successfully as his predecessors did. At home he tried his best to encourage the literary and industrial activities of his kingdom. His excellent taste for art and literature, which has become proverbial in the Deccan, had greatly stimulated the literary and artistic activity of his age and thus prepared the way for the realization of the ideal of the Qutubshāhī kings. Though there were signs of degeneration visible in the social and political life of the period, still the kingdom never ceased to grow in prosperity. New arts and crafts were introduced and encouraged, and as a result, according to Muḥammad Sāqī, there was a multitude of artizans, mechanics and skilled labourers in the kingdom, and it would require another big volume to describe them!¹ The booty which was seized after the capture of Golconda consisted of cash, jewels, and other precious articles

1 Ma'āthir-i-'Alamgiri 302.

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amounting to crores of rupees. To give in exact figure, according to Khāfī Khan, it amounted to six crores and eighty lacs as hard cash excluding jewels and other articles.¹

The military organization of Golconda was also at its best in the reign of Abul Hasan, and as a matter of fact the defence was far stronger than in the previous reign. The siege which was conducted by Aurangēb as a prince in 1656 lasted for a week or two before the king of Golconda sued for peace and agreed to the disgraceful terms dictated by the Moghals. But in the last siege, the fort held out for as long as 8 months against the imperial odds which were adequately provided with arms and ammunition. Had there been no treachery on the part of the Golconda garrison, the siege would have continued longer. To quote the Emperor's own words, had there been more loyal persons like Abdul Razzāq Lāri in the service of Abul Hasan, the siege would have taken a still longer time.² It was only because of the faithless Afghān, 'Abdullāh Khan Punni who threw open the gate and thus enabled the Moghals to rush in and capture the fort. What is much more important to note in this connection is the demonstration of strong character of Abul Hasan who behaved in the presence of his captors with wonderful patience and equanimity unequalled in history. When the heart-rending news of the capture spread like wild fire and every one in the fort was panic-stricken, Abul Hasan showed no sign of consternation. He on the other hand consoled his attendants and his harem to be calm and content with their lot. When the Moghal officers, I'tibār Khan and Rafī'ullāh Khan, who were sent by the Emperor to arrest Abul Hasan, were ushered in his presence, they were simply surprised to see him seated on his royal throne with as much composure of mind as there was nothing unusual. After an exchange of greetings on both sides they were asked to sit down and then they were engaged in a friendly talk. In accordance with the previous directions breakfast was also served in the meantime.

After receiving the intimation that breakfast was ready, he got up to dine and asked the Moghal officers to join him. This was quite a new experience for the Moghals. And Rafī'ullāh Khan could not help expressing his curiosity which was satisfied by the prompt reply from Abul Hasan that it was a decree of fate and he was fully resigned to it. He, like a true Šūfī, was fully prepared to face every exigency of life.³ This demonstration of strong character, peculiar to Golconda, was by itself a

1 Khāfī Khan, vol. II. 362.

2 Khāfī Khan, vol. II. 366.

3 Khāfī Khan, vol. II. 363-364-365.

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strong argument against the charges so unjustly directed against Abul Ḥasan. It cannot be expected from one who is represented as a worthless creature.

The appointment of Madanna as Dewan of the State, which was particularly resented by the Moghal, was no crime. The kingdom of Golconda being broadminded it also allowed Hindus to serve the state as high officers. There were many personalities of the community as Jagput Rao and Dilpat Rao, who held some of the higher posts of the state in the early period, and the appointment of Madanna as a Dewan of the state was in no way *ultra vires*. Madanna did no harm to the state and to the state religion. No Muḥammadan was humiliated. There was certainly a court party, which was averse to the appointment and that is why Madanna and his brother Ackanna were ruthlessly murdered by the party including some of the ladies of the harem. But it was not because of his anti-Islāmic policy. The chief reason why the Moghals were dead against him was that his policy was anti-Moghal not anti-Islāmic. So long as Madanna ruled, he never tolerated any interference on the part of the Moghals and tried his level best to safe-guard the kingdom against Moghal aggression.

Abul Ḥasan took as much interest in the foreign affairs as in domestic. He seems to have been fully aware of the political situation in the Deccan, so complicated by the Moghal aggression. So long as the kingdom of Aḥmad-Nagar existed in the north, the kingdoms of Golconda and Bijāpūr were safe on account of the northern barrier which Aḥmad-Nagar provided. But after the fall of Aḥmad-Nagar, the southern kingdoms were exposed to Moghal attack, and therefore they had to make a common cause with the southern powers to safeguard their integrity; it was the time-honoured policy of Golconda to co-operate with her sister kingdoms, so that there might be a strong united front against the north. Muḥammad Qulī Qutub Shāh and Sulṭān Muḥammad Qutub Shāh helped Chand Bibi and Malik 'Ambar respectively when the kingdom of Aḥmad-Nagar was in danger. 'Abdullāh Qutub Shāh cemented his close alliance with Bijāpūr by giving his sister Khadija Sulṭānā in marriage to Muḥammad 'Ādil Shāh of Bijāpūr, and also sought a political alliance with the Maharatta leader Sivaji. Though the Maharattas were a Hindu power, yet it was natural for the Muḥammadan rulers of the Deccan to trust them as a southern power more than they did others. Abul Ḥasan followed the same principles of diplomacy which had been adopted by his predecessors after mature deliberation. He made a common cause with Sambhaji and he also helped Bijāpūr on

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several occasions of emergency. A treaty of mutual help was concluded between Abul Hasan and Sambhaji and a subsidy of a large sum was also advanced to the latter. The Bijāpūr historian Zubairī gives a full account of how Abul Hasan took interest in the domestic affairs of Bijāpūr. He helped Mas'ūd Khan when he was threatened by the hostile party, and in the time of emergency he posted Ackanna, brother of his Dewan Madanna in Bijāpūr,¹ so that it might not lose its solidarity and fall a prey to the Moghals. This was the policy of Abul Hasan based on his alliance with Sambhaji and Sikandar which were severely criticized by the Moghals as an abominable crime.²

The reign of Abul Hasan was equally promising in the field of art and literature. It is undoubted that he was a highly educated man deeply interested in almost all the branches of learning that existed in those days. Even Ne'mat Khan 'Āli, a great scholar and an officer of the Emperor, who had had long talks with Abul Hasan on several occasions was convinced of his erudition.³ He was also a poet and a number of couplets which are credited to him and which have survived to this day, give a proof of his poetic taste. It is especially interesting to note that he was fond of scholarly life. He always moved in the circle of scholars and used to call on some of the scholars personally and sometimes went walking. An Urdū verse composed by Ṭabī'ī in praise of Shāh Rāju mentions the fact thus:

“O Shāh Rāju, the King has come to you on foot.” Ṭabī'ī, Amīn, Faiz, Latīf, Shāhī, Mirzā named Abul Qāsim, Ghulām 'Alī were the notable poets of the period who were encouraged and patronized by the king. Ṭabī'ī and Shāhī were the court poets who had close contact with the king. They have contributed considerably to Urdū literature. The poetic works as Bahrām and Gul Andām by Ṭabī'ī, the story of Abu Shehma by Amīn, Rizwan Shāh by Faiz, Zafar Nama by Latīf and Padmawant by Ghulām 'Alī were the important literary contributions.⁴

To conclude, Abul Hasan was not a worthless creature as represented by the Moghals, but a prominent figure of greater historical value. His rule was certainly an asset to the history of Golconda.

1 Basatīnus Salatan 455-456.

2 Ma'āthir-i-'Ālamgiri 308.

3 Khāfi Khan, vol. II. 295.

4 Shāh pāray by Dr. G. M. Zör.

THE HYDERABAD ACADEMY

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-

The Hyderabad Academy

CONSTITUTION & RULES

I. Name and Composition

The name of the association shall be the HYDERABAD ACADEMY, and shall consist of:—

- a.* Patrons
- b.* Visitors
- c.* President
- d.* Vice-President
- e.* Secretary
- f.* Joint Secretary
- g.* Treasurer
- h.* Ordinary Members
- i.* Life Members
- j.* Honorary members and
- k.* Sympathisers

and shall function through

- i.* a Council,
- ii.* a Working Committee,
- iii.* a Board of Publication, and
- iv.* such other bodies as may be constituted from time to time in pursuance of its objects.

II. Objects

The objects of the Academy shall be:—

- (i) To promote a sound taste in literary and scientific productions by

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- (a) affording periodical opportunities for a free interchange of ideas between the members interested in particular subjects, and for active collaboration between them;
 - (b) conducting a Journal of its own; and
 - (c) publishing the works of its members, and
- (ii) To safeguard the rights of authorship of its members.

III. Membership

1. The membership of the Academy shall be open to every person who has to his or her credit any published work or is engaged in research or any other literary or scientific pursuit, and is recommended for membership by the Working committee.

2. Every ordinary member shall pay an annual subscription of O. S. Rs. 6/- and shall be entitled to a free copy of the Journal of the Academy.

3. Any ordinary member will become a life-member of the Academy on payment of a lump sum of Rs. 100.

4. Scholars of renown will be eligible for honorary membership on the recommendation of the Working Committee.

IV. Visitors

Notable personalities interested in the objects of the Academy may be elected by the Council as Visitors on the recommendation of the Working Committee. They shall come in precedence of honour next to the Patrons, and shall be entitled to all the privileges of the membership of the Academy.

V. Sympathisers

Persons in sympathy with the objects of the Academy and who pay a donation shall be enrolled as sympathisers of the Academy on the recommendation of the Working Committee.

VI. President

1. The President of the Academy shall be elected by the members of the Council and shall function for two years but shall be eligible for re-election.

2. He shall preside over the meetings of the Academy, the Council, and the Working Committee and exercise his casting vote.

VII. The Vice-President

1. The Vice-President shall be elected by the Council from among the members of the Academy and shall function for two years and shall be eligible for re-election.

2. In the absence of the President, he shall preside over the meetings of the Academy, the Council, and the Working Committee, and shall exercise the privileges of the President.

VIII. Council

1. There shall be a Council of the Academy consisting of not less than 25 members and not more than 30, who shall

- (a) arrange the academic programme,
- (b) admit new members of the Academy,
- (c) elect all office bearers,
- (d) elect the Working Committee and the Board of Publication and fill vacancies occurring therein,
- (e) adopt by-laws, and
- (f) frame additional rules or modify or delete existing ones subject to the approval of the Academy.

2. The Council shall be elected every two years from amongst the members of the Academy. Vacancies occurring in the intervals shall be filled in by the remaining members of the Council from amongst the members of the Academy.

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IX. Working Committee

1. There shall be a Working Committee consisting of the (a) President, (b) Vice-President, (c) Secretaries, (d) Treasurer and (e) seven other members.

2. The Working Committee shall be the executive body of the Academy and

(a) Shall consider all matters referred to it by the constituent bodies of the Academy or by any member of the Academy;

(b) Initiate all measures as it may deem necessary in pursuance of the objects of the Academy; and

(c) Submit the budget to the Academy for sanction.

3. The Working Committee shall meet at least once a month or, as often as may be found necessary. The quorum shall be six.

X. The Secretary and the Joint Secretary

1. The Secretary and the Joint Secretary shall hold office during the term of the Council electing them and shall be eligible for re-election.

2. The Secretary shall convene all the meetings of the Academy, the Council and the Working Committee, keep minutes, and be responsible for carrying out all the resolutions adopted by them, and attend to all correspondence.

3. The Joint Secretary shall discharge the duties of the Secretary as are assigned to him by the Secretary, and act as Secretary in his absence.

4. The Secretaries shall prepare the annual budget in consultation with the Treasurer, and submit it to the Working Committee for consideration.

XI. Treasurer

1. The Treasurer of the Academy shall hold office during the term of the Council electing him and shall be eligible for re-election.

Constitution and Rules

2. He shall keep accounts and make disbursements under the instructions of the Secretary within the provision of the budget, and submit monthly balance-sheets for the information of the Working Committee.

3. He shall keep all the moneys of the Academy in a bank approved by the Working Committee and he shall be entitled to operate upon the same.

XII. Board of Publication

There shall be a Board of Publication of the Academy consisting of nine members in charge of the conduct of the Journal of the Academy and other publications. The Board shall be elected by the Working Committee for two years and at the end of every two years, there shall be a fresh election and the retiring members of the Board shall be eligible for re-election.

XIII. Meetings of the Academy

1. The Academy shall assemble at least once a year.

2. The Academy shall pass the Budget, and adopt the Annual report submitted by the Working Committee.

3. It shall consider all matters referred to it by the Working Committee.

4. It shall be the sole authority to adopt modifications in the Constitution and the Rules of the Academy as recommended by the Working Committee.

XIV. The Official Year

The official year shall commence from the 1st of Shahrewar (July) every year.
