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SCIENCE

SECTION I

CHEMISTRY

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RELATION BETWEEN HYDRATION AND THE STABILITY OF A SOL AND THE ABNORMAL COAGULATING EFFECT OF THE FLUORIDE ION ON SOME HYDROXIDE SOLS

BY

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Colloids have been classified mainly in two groups lyophile and lyophobe. It is believed that with lyophile colloids a large amount of water is associated whilst the lyophobe colloid particles contain very little water. A high viscosity, reversibility and a great stability have been specified as general properties of lyophile colloids. On the other hand, a lyophobe colloid has been stated to possess a viscosity practically the same as that of the medium, irreversibility and ready coagulability on the addition of electrolytes.

In a paper[1] published from these laboratories we have shown that a greater degree of hydration is connected

[1] Journ. Phys. Chem., *30*, 1646 (1926).

with an increase in viscosity and a decrease in surface tension of the medium. Thus well-known lyophile colloids like gelatine, albumin, gum-arabic, etc., are twofold or threefold more viscous than the dispersing medium water even in 1% solution and considerably diminish the surface tension of water. Moreover, it was remarked in the same paper that a lyophile colloid, which has a tendency to disintegrate on ageing, should become more viscous on standing owing to the greater amount of hydration and should show a decrease of electrical conductivity because of the greater adsorption of the free electrolyte resulting from an increase in the surface of the colloid particles. This decrease in the electrical conductivity may also be partly due to an increase in the viscosity of the medium. On the other hand, a lyophobe colloid becomes less viscous and shows an increase in the electrical conductivity because the lyophobe colloid particles lose both the adsorbed water and the electrolyte on ageing. Hence in a previous paper it has been remarked by us that generally lyophile colloids show (1) high viscosity, (2) lower surface tension than the dispersing medium water, (3) increase in viscosity, and (4) decrease in the electrical conductivity on ageing. While a lyophobe colloid should show (1) a viscosity not much different from that of water, (2) surface tension practically the same as that of water, (3) a decrease in viscosity, and (4) an increase in the electrical conductivity on ageing. A large number of both lyophile and lyophobe colloids have been investigated from this point of view and it has been observed that the above relations are true in all cases.

Freundlich and Scholz[1] investigated the coagulation of (1) Odèn's sulphur sol, (2) Weimarn's sulphur sol, (3) gold sol prepared by Donau's method and (4) arsenious

[1] Koll. Chem. Beihefte, *16*, 267 (1922).

sulphide sol by mixtures of various electrolytes. They have concluded that the marked ' ionic antagonism ' observed with Odèn's sulphur sol and arsenious sulphide sol arises from the higher degree of hydration of these sols. The ' ionic antagonism ' observed with many biological systems and lecithin sols has also been ascribed by them to the large amount of water content of these substances. We have, however, conclusively proved from a large number of investigations that the explanation of ' ionic antagonism ' advanced by Freundlich and Scholz is not correct. Weiser[1] has also concluded that Freundlich's arguments based on the view of hydration of sols are untenable as Weiser's experimental results prove that stannic hydroxide does not develop any ' ionic antagonism ' when coagulated by a mixture of electrolytes, whilst arsenious sulphide sol shows definite 'ionic antagonism' in spite of the fact that stannic hydroxide is more hydrated than arsenious sulphide. Weiser has tried to explain ' ionic antagonism ' on the view of the depression in the amount of adsorption of one coagulating ion in the presence of another. We have, however, definitely shown [2] that this decrease in adsorption of an ion in the presence of another is observable with all kinds of colloidal solutions and the specific effect of ' ionic antagonism' observed with a particular kind of sols cannot be explained from Weiser's view-point and mainly depends upon the property possessed by some colloids of adsorbing the similarly charged ion from an added electrolyte. We shall show later on that ceric hydroxide sol obtained from ceric-ammonium nitrate is both lyophobic and lyophilic according to the mode of preparation and does not show any ' ionic antagonism ' and

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[1] Journ. Phys. Chem., *28*, 232 (1924).

[2] Journ. Phys. Chem., *29*, 435; 659 (1925); Koll. Zeit *41*, 223 (1927).

requires additive amounts of two electrolytes to coagulate the sol when it is precipitated by their mixtures.

One remarkable property observed with lyophilic sols like gelatine, albumin, gum-arabic, etc., is their great stability towards electrolytes. Freundlich[1] believes that the stability of a sol depends upon (a) the electric charge on colloid particles and (b) the hydration or solvation of colloid particles, which is only prominent in the case of lyophile colloids. It may be of interest to point out here that sols of vanadium pentoxide and stannic hydroxide, which are comparatively more hydrated than the sols of arsenious sulphide, gold, etc., are not at all more stable towards electrolytes than these latter sols, which are certainly lyophobic. Moreover, we[2] have observed that the viscosity of vanadium pentoxide sol is fairly high, it easily yields transparent jellies, and is reversible to some extent when coagulated by monovalent ions. Also the viscosity of this sol increases and the electric conductivity decreases on ageing, and hence a sol of vanadium pentoxide behaves in many respects as a hydrophile colloid. This sol has been, however, found to be less stable towards electrolytes than many lyophobe colloids like arsenious sulphide or gold. In the following table the coagulating powers of KCl and $BaCl_2$ are recorded for comparison:—

TABLE I.

Sol.	Concentration in grams per litre.	Coagulating power of KCl.	Coagulating power of $BaCl_2$.
V_2O_5	0·92	77	2500
As_2S_3	3·688	12	357
Gold	0·065	15	303

[1] Freundlich: Colloid and Capillary Chemistry, Eng. Ed, 1922, page 833.

[2] Zeit. Anorg. Chem., *132*, 399 (1926)

The foregoing table shows that the hydration of a sol is not the determining factor of its stability towards electrolytes and we have, therefore, investigated in this paper the coagulation of ceric hydroxide, thorium hydroxide, ferric hydroxide and stannic hydroxide from the point of view of hydration of these sols.

EXPERIMENTAL.

Sols of (*a*) ceric hydroxide, (*b*) thorium hydroxide, (*c*) ferric hydroxide, and (*d*) stannic hydroxide were prepared firstly in the cold and secondly in the hot condition. We have observed that in all cases the hydration of colloidal solutions is far greater when the sol is prepared in the cold than when it is prepared in the hot condition. We have found that the sol prepared in the cold is always more viscous than the sol prepared in the hot. Thus the sol of CeO_2 obtained by dialysing a solution of ceric ammonium nitrate at the ordinary temperature (20°) yields a sol which is highly viscous and finally sets to a firm jelly in the course of a fortnight. On the other hand, the sol of the same substance obtained by first boiling a solution of ceric ammonium nitrate and then dialysing at the ordinary temperature, does not show high viscosity nor sets to a jelly when kept for more than three months. When the sol obtained in the cold is coagulated by an electrolyte it immediately sets to a transparent and firm jelly, whilst the sol obtained in the hot condition only gives a gelatinous precipitate.

Mecklenburg[1] has shown that stannic hydroxide prepared at different temperatures contains varying amounts

[1] Zeit. Anorg. Chem , *74* , 207 (1912).

of water and possesses different adsorptive powers. He found that stannic hydroxide prepared at higher temperatures contain lesser amounts of water and are of lower adsorptive capacity than those prepared at lower temperature. We have emphasised in several papers[1] that the adsorptive power of a substance for water and for any solute is greatly diminished either by heat or on ageing.

A. CERIC HYDROXIDE.

50 grs. of ceric ammonium nitrate (Kahlbaum) was dissolved in 250 c. c. of water at a temperature of (20°) and the solution was allowed to dialyse for 4 days in a parchment bag. Thus we obtained a sol prepared in the cold and contained 18·84 grs. of CeO_2 per litre.

In order to obtain the sol in the hot condition 50 grs. of ceric ammonium nitrate were dissolved in 250 c. c. of water and the solution was boiled over a direct flame for about 15 minutes and was dialysed for seven days. This sol contained 13·18 grs. of CeO_2 per litre.

When an electrolyte like KCl, K_2SO_4 etc., is added to the sol prepared in the cold, the sol sets to a firm jelly. When the sol prepared in the cold is allowed to evaporate at the ordinary temperature, a horny yellow transparent mass is left, which can again pass into the colloidal condition by adding water. This behaviour of ceric hydroxide sol closely resembles that of well-known lyophile colloids like gelatin, gum-arabic, etc.

The following results were obtained on the coagulation of the sol of ceric hydroxide prepared in the cold and hot conditions:—

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[1] Journ. Phys. Chem., *28*, 457 (1924); *30*, 628 (1926).

TABLE II.

Coagulation of ceric hydroxide sol prepared in the *cold*.
Concentration of the sol = 18·84 grs. of CeO_2 per litre.
1 c. c. of the sol is taken at a time.
Volume = 10 c. c. Time = 1 hour.

Electrolyte	Concentration.	Amount required to gelatinise in c. c.	Coagulating power.
KCl	N	2·8	3·6
KBr	1·42N	2·5	2·6
KI	N	1·2	8·3
K_2F_2	N/34·5	1·0	345·0
K_2SO_4	N/50	1·3	384·6

TABLE III.

Coagulation of ceric hydroxide sol prepared in the *hot*.
Concentration of the sol = 13·18 grs. of CeO_2 per litre.
1 c. c. of the sol is taken each time.
Volume = 10 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
KCl	N	2·8	3·6
KBr	1·42 N	2·5	2·6
KI	N	1·2	8·3
K_2F_2	N/34·5	0·9	383·3
KS_2O_4	N/50	1·05	476·2

From the above tables it will be seen that the coagulating powers of different anions are in the following decreasing order :—

$SO_4'' > F_2'' > I' > Cl' > Br'$.

It is interesting to point out here that the coagulating power of the fluoride ion is about times 100 greater than that of the chloride ion and approaches the coagulating power of bivalent sulphate ion. Iodide ion has also been found to possess a greater coagulating power than either chloride or bromide ion.

The following results were obtained when ceric hydroxide sol prepared in the cold is coagulated by a mixture of KCl and K_2SO_4 :—

TABLE IV.

1 c. c. of the sol is taken each time.
Volume = 10 c. c. Time = 1 hour.

Amount of N KCl added in c. c.	Amount of N/50 K_2SO_4 to coagulate in c. c.		Difference.	% Difference.
	Added.	Calculated.		
0	1·30	...	...	...
2·8	0	...	...	...
0·4	1·10	1·11	0·01	0·9
0·8	0·90	0·93	0·03	3·2
1·2	0·70	0·74	0·04	5·4

It will be seen from the Table IV that highly hydrated ceric hydroxide sol prepared in the cold does not show any 'ionic antagonism' when coagulated by a mixture of two anions of varying precipitating powers; on the other hand, the sol shows additive relationship. Similar results are obtained with ceric hydroxide sol prepared in the hot, which is a lyophobe colloid. In the following table the results are recorded when ceric hydroxide sol

prepared in the hot is coagulated with mixtures of KCl and K_2SO_4 :—

TABLE V.

1 c. c. of the sol is taken at a time.

Volume = 10 c. c. Time = 1 hour.

Amount of N KCl added in c. c.	Amount of N/50 K_2SO_4 to coagulate in c. c.		Difference.	% Difference.
	Added.	Calculated.		
2·8	0	...	...	...
0	1·05	...	. .	...
0·4	0·90	0·90	0	0
0·8	0 65	0 75	0·10	13·3
1·2	0·55	0·65	0·10	15·4

B. THORIUM HYDROXIDE SOL.

Two sols of thorium hydroxide were prepared. One was obtained by dialysing a solution of thorium nitrate at the ordinary temperature for about a month, and the other is obtained by dialysing a boiled solution of thorium nitrate. The former sol prepared in the cold shows greater viscosity and gives a more bulky precipitate than the latter sol prepared in the hot. Both the sols could not be coagulated by monovalent electrolytes like KCl, KBr, etc. The sol prepared in the cold could be coagulated by as aturated solution of KI. This marked stability of thorium hydroxide sols is probably due to the presence of some peptising $Th^{\cdot\cdot\cdot\cdot}$ ions.

In the following tables the results are given when thorium hydroxide sols prepared both in the cold as well

as in the hot are coagulated by various anions from potassium salts:—

TABLE VI.

Coagulation of thorium hydroxide sol prepared in the *cold*.
Concentration of the sol = 4·25 grs. ThO_2 per litre.
Amount of the sol taken each time = 2 c. c.
Volume = 6 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
KCl	3N	>4·0	...
KBr	3N	>4·0	...
KI	3N	>4·0	...
K_4Fe	N/34·5	0·55	627·3
K_2SO_4	N/50	0·70	714·3

TABLE VII.

Coagulation of thorium hydroxide sol prepared in the *hot*.
Concentration of the sol = 2·52 grs. ThO_2 per litre.
Amount of the sol taken each time = 2 c. c.
Volume = 6 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
KCl	3N	>4·0	...
KBr	3N	>4·0	...
KI	3N	>4·0	...
K_4Fe	N/34·5	0·45	766·7
K_2SO_4	N/50	0·60	833·3

From the above tables it will be seen that whilst 3N solutions of KCl, KBr, KI could not coagulate the sol, N/34·5

solution of potassium fluoride is sufficient to precipitate the colloid. The coagulating power of the fluoride ion is more akin to that of the bivalent sulphate ion than those of monovalent Cl′, Br′, and I′ ions. It should also be remarked here that the stability of thorium hydroxide sol prepared in the cold is more or less similar to that of the sol prepared in the hot.

C. FERRIC HYDROXIDE SOL.

Sols of ferric hydroxide were prepared by two different methods. One sol was prepared by dropping a few c. c. of ferric chloride solution in boiling water and then dialysed over distilled water for 5 days. Another sample of ferric hydroxide sol was prepared by gradually treating a solution of $FeCl_3$ with $(NH_4)_2CO_3$ at the ordinary temperature till a slight precipitate of $Fe(OH)_3$ appears and does not redissolve on shaking. It was left to dialyse for about 50 days. The second sol prepared at the ordinary temperature shows greater viscosity and is, therefore, more hydrated than the first sol, which is prepared from boiling water.

The following tables give the results when both the sols (prepared in the cold as well as in the hot) are coagulated by electrolytes :—

TABLE VIII.

Coagulation of ferric hydroxide sol prepared in the *hot*.
Concentration of the sol = 1.244 grs. Fe_2O_3 per litre.
Amount of the sol taken each time = 2 c. c.
Volume = 10 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
KCl	N	1·05	9·5
KBr	1·42 N	0·80	8·8
KI	3N	0·60	5·6
K_2F_2	N/34·5	0·85	405·9
K_2SO_4	N/50	1·15	434·8

TABLE IX.

Coagulation of ferric hydroxide sol prepared in *cold*.
Concentration of the sol = 12·2 grs. Fe_2O_3 per litre.
Volume = 10 c. c. Time = 1 hour.
Amount of the sol taken each time = 2 c. c.

Electrolyte.	Concentration.	Amount required to coagulate in c.c.	Coagulating power.
KCl	N/5	1·65	30·3
KBr	N/5	2·25	22·2
KI	N/5	3·0	16·7
K_2F_2	N/34·5	1·6	215·6
K_2SO_4	N/50	1·4	357·1

From the above tables it will be seen that the coagulating powers of different anions are in the following decreasing order: SO_4'' > Fluoride > Chloride > Bromide > Iodide, the coagulating power of fluoride ion is far greater than that of monovalent ions like Cl′, Br′ and I′ and is practically equal to that of the bivalent sulphate ion. The sol prepared from boiling water is more stable towards electrolyte than the sol prepared at the ordinary temperature, in spite of the fact that the amount of water content in the colloid particles should necessarily be greater in the latter sol than in the former one.

D. STANNIC HYDROXIDE SOL.

This sol was prepared by peptising a freshly precipitated and well-washed stannic hydroxide by Na(OH) and then the sol was dialysed to free it from the excess of alkali. Another sol was prepared by peptising the precipitate of

stannic hydroxide in boiling Na(OH). This was subsequently dialysed. The first sol certainly contains more water than the second one and we have found that the viscosity of the former sol is greater than that of the latter sol. The following results were obtained when both the sols were coagulated by various cations :—

TABLE X.

Coagulation of stannic hydroxide sol prepared in the *cold.*

Concentration of the sol = 2.9 grs. SnO_2 per litre.

Amount of the sol taken each time = 2 c. c.

Volume = 10 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
Li Cl	N/20	1·50	133·3
NaCl	N/20	1·50	133·3
KCl	N/20	1·65	121·2
Rb Cl	N/20	1·60	125·0
Cs Cl	N/20	1·50	133·3

TABLE XI.

Coagulation of stannic hydroxide sol prepared in the *hot.*

Concentration of the sol = 3·7 grs. SnO_2 per litre.

Amount of the sol taken each time = 2 c. c.

Volume = 10 c. c. Time = 1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
Li Cl	N/20	1·50	133·3
NaCl	N/20	1·50	133·3
KCl	N/20	1·60	125·0
Rb Cl	N/20	1·55	129·0
Cs Cl	N/20	1·50	133·3

From the above tables we find that the coagulating powers of different cations are in the following decreasing order :— $Li^{\cdot}$, $Na^{\cdot}$, $Cs^{\cdot} > Rb^{\cdot} > K^{\cdot}$, $Li^{\cdot}$, $Na^{\cdot}$ and $Cs^{\cdot}$ ions possess slightly greater coagulating powers than $Rb^{\cdot}$ and $K^{\cdot}$ ions. The coagulating powers of the various cations are very slightly different from each other and are practically the same. It may be of interest to point out here that the coagulating powers of these cations with several negatively charged sols like As_2S_3, Sb_2S_3 etc., are generally in the following decreasing order $Cs^{\cdot} > Rb^{\cdot} > K^{\cdot} > Na^{\cdot} > Li^{\cdot}$. We find however that the stability of the sols of stannic hydroxide prepared in the hot and cold towards electrolytes does not appreciably differ when coagulated by monovalent ions.

DISCUSSION.

My experimental results on the coagulation of positively charged sols of ceric hydroxide, thorium hydroxide, and ferric hydroxide show that the coagulating power of fluoride ion is far greater than that of monovalent anions Cl', Br' and I' and is approximately equal to that of the bivalent anion SO_4''. In a recent paper Freundlich and Aschenbrenner[1] have also compared the coagulating power of the fluoride ion with other halogen ions on sols of ferric hydroxide and cupric hydroxide and have ascribed the high coagulating effect of fluoride ion to its higher degree of hydration than other halogen ions. This view of Freundlich, however, contradicts his own statements on the coagulation of negatively charged sols by monovalent cations. Thus Freundlich[2] remarks "In Table 112 it is unmistakable that the flocculation values of the ions of the alkali metals arrange themselves in the lyotropic series $Li^{\cdot} > Na^{\cdot} > K^{\cdot} >$

[1] Koll. Zeit *41*, 35 (1927).

[2] Freundlich : Colloid and Capillary Chemistry, Eng. Ed., 1922, pp. 426-27.

NH_4^+. With many negative hydroxide sols this is even more striking. Thus the flocculation value ranges for negative V_2O_5 sol from 130 millimole per litre for LiCl to 7·7 for RbCl. Whether here the parallelism between adsorbability and lyotropic series makes itself felt, or whether the hydration of the ions asserts itself in a way not hitherto considered by the theory, remains undecided. I am almost inclined to believe the latter alternative. . . . . the flocculation values of the alkali metal cations differ very little, whilst with the more hydrophilic Odèn sol the lyotropic series was quite distinct, thus the flocculation value for the Weimarn sol ranged from 34 millimoles for LiCl to 30 for CsCl, for the Odèn's sol between 750 millimoles for LiCl and 95 for CsCl." It will be obvious that in the coagulation of the negatively charged sols Freundlich ascribes the low coagulating power of Li^+ to the greater hydration of this ion than other monovalent cations like K^+, Rb^+, Cs^+ etc., and believes that the difference in the coagulating powers of Li^+ ion than other monovalent ions say Rb^+ or Cs^+ will be greater with the greater hydration of a colloidal particle.

Freundlich, however, believes that the high coagulating power of the fluoride ion is due to its greater degree of hydration. It seems difficult to believe in one case a greater hydration of an ion to be the cause of its high coagulating value and in another to be the cause for its low precipitating power. Moreover, if the difference in the degree of water content of an ion were the main cause of marked variation in the precipitation values of ions of the same valence, we expect a greater divergency in the case of monovalent alkali cations like Cs^+, Rb^+, Li^+, etc., for negatively charged sols than in the case of monovalent halogen anions like fluoride, chloride, iodide, etc. It is well known that Li^+ ion is associated with a large amount of water whilst Rb^+ or Cs^+ contain practically no water mole-

cules. On the other hand the number of water molecules associated with fluoride or chloride ion are not very different. In other words, the difference in the amount of water content is far greater in the case of the univalent alkali cations than in the case of the halogen ions.

My investigations on the coagulation of positively charged sols of ferric hydroxide, thorium hydroxide, and ceric hydroxide prove that there exists a greater difference in the coagulating power of the fluoride ion and other halogen ions, in some cases the fluoride ion possesses 100 times greater coagulating power than either chloride, bromide or iodide ion. On the other hand, we find that the coagulating power of $Rb^{\cdot}$ ion is only about 17 times greater than that of $Li^{\cdot}$ ion in the case of vanadium pentoxide sol and the coagulating power of $Cs^{\cdot}$ ion is only about 8 times more than that of $Li^{\cdot}$ ion with Oden's Sulphur sol. I am, therefore, led to believe that the difference in hydration of fluoride ion in comparison with other halogen ions can in no way account for its high coagulating value which practically approaches to that of the bivalent anion SO_4''. I am of opinion that this is due to bivalent nature of fluoride ion and it exists in solution as F_2''. There are other evidences with regard to the bivalent nature of fluoride ion. Many years ago Jaeger[1] proved that hydrofluoric acid exists as H_2F_2 in solution. I am of opinion that basicity of an acid can be determined from its coagulating influence from its sodium or potassium salt on positively charged sols.

We have observed in the coagulation of stannic hydroxide sol prepared in the cold as well as in the hot condition that the coagulating powers of monovalent cations like $Li^{\cdot}$, Na, $K^{\cdot}$, $Rb^{\cdot}$ and $Cs^{\cdot}$ differ from one another only slightly and the coagulating power of $Li^{\cdot}$ ion is actually slightly greater than that of either $Rb^{\cdot}$ or $K^{\cdot}$ ion. It is,

[1] Zeit. Anorg. Chem., *27*, 22 (1901).

however, well known that a micelle of stannic hydroxide sol is associated with far greater amounts of water than many lyophobe colloids and if Freunldich's view were correct we should expect that the coagulating power of $Cs^{\cdot}$ or $Rb^{\cdot}$ ion should be far greater than highly hydrated $Li^{\cdot}$ ion and this is not experimentally verified. My experimental results on the coagulation of the sols of ceric hydroxide, thorium hydroxide and ferric hydroxide prepared in the cold as well as in the hot by monovalent anions also prove that the hydration of a sol does not account for the difference observed in the coagulating powers of the ions of the same valency. Thus the coagulating powers of Cl', Br' and I' ions for ceric hydroxide sol prepared in the cold are 3·3, 2·6 and 8·3 respectively and the same values are also obtained for these ions with ceric hydroxide sol prepared in the hot. It has already been said that the sol prepared in the cold contains far greater quantities of water than the sol prepared in the hot.

From my investigations in this paper I have also shown that a greater degree of hydration of a sol is not necessarily a prominent factor for the stability of a sol towards electrolytes. A comparison of the coagulating powers of different anions with various sols prepared in the cold and in the hot show that the sol, which is associated with larger amounts of water, is not necessarily more stable towards electrolytes than the sol containing lesser amounts of water.

It will be interesting to point out here that the coagulating power of iodide ion for ceric hydroxide sol is greater than that of either chloride or bromide ion. I have observed that when potassium iodide is added to a sol of ceric hydroxide traces of iodine are liberated due to the decomposition of ceric ion present in the sol as a peptising agent. I am of opinion that the decomposition of the peptising ceric ion accounts for the high coagulating power

of the iodide ion. We[1] have already remarked in one of the papers published from these laboratories that the coagulating power of an ion will be high if it can remove the stabilising electrolyte present in a sol. Thus we attributed the high precipitating power of an alkali towards sols of ferric hydroxide, chromium hydroxide, etc., to the fact that OH' ion can remove the stabilising $H^{\cdot}$, $Fe^{\cdot\cdot\cdot}$ and $Cr^{\cdot\cdot\cdot}$ ions from the sols by forming H_2O, and $Fe(OH)_3$ or $Cr(OH)_3$. Freundlich and Nathanson[2] and Thomas[3] have also shown that the mutual coagulation observed when Odèn's sulphur sol is added to arsenious sulphide sol because the pentathionic acid from Odèn's sol and H_2S from arsenious sulphide react with each other forming sulphur and hence coagulation is effected due to the mutual decomposition of two stabilising substances. I have also shown that Na_2S possesses a high coagulating power with Odèn's sulphur sol, because it can decompose the stabilising pentathionic acid present in the sol. In the following table the experimental results are recorded :—

TABLE XII.

Coagulation of sulphur sol (Odèn).
Concentration of the sol=2·1 grms. of S per litre.
Amount taken each time=2 c. c.
Volume=10 c. c. Time=1 hour.

Electrolyte.	Concentration.	Amount required to coagulate in c. c.	Coagulating power.
KCl	N/2	1·30	15·4
Na_2S	N/69·75	1·30	536·5

[1] Koll. Zeit, *39*, 346 (1926).
[2] Koll. Zeit, *28*, 258 (1920) ; *26*, 16 (1921).
[3] Colloidal behaviour I, Bogue 324, (1926).

SUMMARY AND CONCLUSION.

1. Experimental results on the coagulation of the sols of ceric hydroxide and thorium hydroxide prepared in the hot and in the cold by Cl', Br' and I' ions show that the coagulating powers of these ions are the same in the case of sol prepared in the hot as in the cold.

2. With ferric hydroxide sol the coagulating power of monovalent ions like Cl', Br', I' is greater for the sol prepared in the hot than that for the sol prepared in the cold.

3. With stannic hydroxide sol there is no appreciable difference in the coagulating powers of $Li^{\cdot}$, $Na^{\cdot}$, $K^{\cdot}$, $Rb^{\cdot}$ and $Cs^{\cdot}$ ions for the sol prepared in the hot and that prepared in the cold.

4. In the coagulation of stannic hydroxide sol (both hot and cold) the coagulating powers of $Li^{\cdot}$, $Na^{\cdot}$, $K^{\cdot}$, $Rb^{\cdot}$ and $Cs^{\cdot}$ ions are practically identical.

5. Fluoride ion has been found to possess a very high coagulating power in comparison with monovalent ions like Cl', Br' and I', and behaves as a bivalent ion for the sols of ceric hydroxide, thorium hydroxide and ferric hydroxide. We are of the opinion that this is due to the bivalent nature of the fluoride ion, which exists in solution as F''.

6. It has been shown that ceric hydroxide sol prepared in the cold is lyophilic in nature and does not develop 'ionic antagonism' when coagulated by mixtures of electrolytes, and the explanation of Freundlich and Scholz of 'ionic antagonism' is incorrect.

7. It has been observed that the great difference observed in the coagulating powers of several ions of the same valency cannot be due to the higher degree of hydration of the colloid particles.

8. The sols, which are associated with larger amounts of water are not generally more stable towards electrolytes than the sols which are solvated to lesser extents.

9. If an ion can decompose the stabilising electrolyte present in the sol, it generally possesses a higher coagulating power than the other ions of the same valency.

10. A lyophilic colloid shows (*a*) high viscosity, (*b*) lower surface tension than the dispersing medium water, (*c*) an increase in viscosity and (*d*) a decrease in the electrical conductivity on ageing. While a lyophobic colloid shows (*a*) a viscosity not much different from that of water, (*b*) surface tension practically the same as that of water, (*c*) a decrease in viscosity, and (*d*) an increase in the electrical conductivity on ageing.

11. I have shown in this paper that the greater degree of hydration of the precipitating ion or the sol does not play a very important rôle in the coagulation of a sol as has been assumed by other workers.

12. The basicity of an acid can be determined from the coagulating power of the anion from its sodium or potassium salt with positively charged sols.

THE INFLUENCE OF THE INTENSITY OF INCIDENT LIGHT ON THE VELOCITY: SOME PHOTOCHEMICAL REACTIONS

BY

B. K. MUKERJI

Very few photochemical reactions have been investigated from this point of view. Draper[1] in 1843 first established that in the reaction between hydrogen and chlorine the chemical change was proportional to the intensity of the light. During recent years various investigators have been at work to settle this problem which is still unsolved.

Another reaction which has been taken up in recent years from this point of view is the photochemical oxidation of potassium oxalate by iodine. This reaction was first investigated by Dhar[2] who has definitely established that the temperature co-efficient of the reaction decreases with the increase in the intensity of the light. We have now studied quantitatively the influence of the change of intensity of light on the rate of this as well as the following fourteen reactions :

1. Chromic acid and oxalic acid in presence of manganous sulphate and sulphuric acid.
2. Sodium citrate and iodine.
3. Ammonium oxalate and iodine.

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[1] Phil. Mag., *23*, 401 (1843).

[2] Jour. Chem. Soc., *111*, 707 (1917); *123*, 1856 (1923),

4. Sodium malate and iodine.
5. Sodium nitrite and iodine in presence of sodium acetate.
6. Sodium formate and iodine in presence of sodium acetate.
7. Sodium-potassium tartrate and bromine in presence of sodium acetate.
8. Ferrous sulphate and iodine.
9. Bleaching of Dicyanin.
10. Oxidation of iodoform in benzene as solvent.
11. Sodium formate and mercuric chloride in presence of sodium acetate.
12. Ammonium oxalate and mercuric chloride in presence of eosin as sensitiser.
13. Oxidation of quinine by chromic acid in presence of sulphuric acid.
14. Oxidation of malic acid by potassium permanganate in presence of sulphuric acid.

EXPERIMENTAL.

The experimental arrangement adopted for these investigations is as follows:—

A thermostat was maintained at a constant temperature and water from it was circulated by means of an automatic syphon inside a hollow double-walled rectangular jacket made of copper, the ends of which could be closed by means of shuttered screens. Inside the hollow space of this jacket was placed a closely fitting rectangular glass cell with parallel ends which served as the vessel in which the reaction took place.

A thermometer with graduation up to 1/10th of a degree was always kept suspended with its bulb dipping inside the reacting mixture so that the temperature at

which the reaction took place could be controlled within $\pm 0{\cdot}1^{\circ}$.

A 1000-watt gas-filled tungsten filament lamp operated at 4·6 amperes was used as the source of light in these experiments. To check the constancy of the current consumed an ammeter was connected in series with the lamp. Owing to the intense heating effect produced by the lamp an electric radiator had to be constantly used at the back of the lamp. The lamp and the radiator were enclosed in a box made of thick wood with asbestos cardboard lining inside. In order to get the maximum intensity and a parallel beam of light a combination of two big condenser glass lenses was placed in position between the source of light and the reaction vessel.

To isolate any particular region of wave-lengths a combination of two light filters out of a set of gelatin film "Wallace M and S" filters manufactured by the Central Scientific Company was used.

A screened iris diaphragm was placed between the light filters and the reaction vessel in such a way that all other lights excepting that passing through the aperture was prevented from falling on the reacting body. The change in the intensity of the incident light was effected by varying the size of the aperture and it was taken to be directly proportional to the area of the aperture through which the light finally passed before illuminating the reaction vessel.

The changes in the reactions studied were observed by withdrawing some of the reacting mixture at noted intervals of time and subjecting it either to spectrophotometric measurements or suitable titrations.

In all the experiments the superimposed thermal reactions were deducted from the total reaction carried on in light in order to obtain the effect due only to light.

I. POTASSIUM OXALATE AND IODINE.

(*a*) $K_2C_2O_4$ —N/2·52; I—N/100; KI—N/30

No light filter was used.

Temperature = 20°C.

(i) Diameter of the aperture = 2·0 cm.

Time in minutes.	Sodium thiosulphate * per 3 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ ** (Semi-molecular $\frac{1}{2}$).
0	4·85 c. c.	
15	4·5	0·0108
30	4·2	·0102
50	3·85	·00960
	Mean =	0·0102

(ii) Diameter of the aperture = 1·2 c.m.

0	4·85 c. c.	...
25	4·55	0·00560
52	4·25	0·00542
105	3·65	·00556
	Mean =	0·00543

(iii) Diameter of the aperture = 1·0 c.m.

0	4·85 c. c.	...
32	4·5	0·00506
56	4·25	·00500
84	3·95	·00512
	Mean =	0·00506

* The concentrations of iodine per 3 c.c. of the reacting mixture being directly proportional to the respective thiosulphate titre, logarithmic values of the latter have been taken directly in the above computations.

** The formula for the semi-molecular velocity constant is $K_{\frac{1}{2}} = \frac{2}{t}(\sqrt{a} - \sqrt{a-x})$, where the symbols have the usual significance.

The oxidation of potassium oxalate by iodine proceeds in the darkness at a rate which is negligible in comparison with the velocity obtained photochemically. Hence, in considering the final result the values obtained in (i), (ii) and (iii) were directly utilised.

Results.

Diameter of aperture No. (i) = 2·0 cm.
Area of the aperture = *3·142* sq. cm.
Diameter of aperture No. (ii) = 1·2 cm.
Area of the aperture = *1·131* sq. cm.
Diameter of aperture No. (iii) = 1·0 cm.
Area of the aperture = 0·786 sq. cm.

Now,	I	II If proportional direct to change in intensity.	III If proportional to the square root of the change of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·0102}{·00543}$	$= 1·88 \frac{3·142}{1·131}$	$= 2·78 \quad \sqrt{2·78} = 1·67$
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·0102}{0·00506}$	$= 2·02 \frac{3·142}{0·786}$	$= 4·00 \quad \sqrt{4·00} = 2·0$
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·0543}{0·00506}$	$= 1·07 \frac{1·131}{0·786}$	$= 1·44 \quad \sqrt{1·44} = 1·20$

From the above results it is apparent that the change in the velocities of the reaction is proportional to the square root of the change in the intensities of the incident radiation, because the values found experimentally in column I agree with the theoretical results obtained in column III within the limits of experimental error.

This experiment was repeated by using light filters, apertures of different dimensions as well as different concentrations of the reactants.

The following are the experimental results :—

(b) Potassium Oxalate and Iodine.

$K_2C_2O_4$—N/2·95; I_2—N/113·6; KI—N/29·35

Filters 8 and 3 (λ5000-4450Å)

Mean λ = 4725 Å.

Temperature = 30°C.

(i) Diameter of aperture = 3·55 cm.

Time in minutes.	Sodium thiosulphate per 5 c c. of the mixture.	$K_{\frac{1}{2}}$.
0	7·13 c. c.	...
13	6·7	0·0126
30	6·2	·0121
60	5·25	·0126
	Mean=	0·0124

(ii) Diameter of the aperture = 3·09 cm.

0	7·13 c. c.	...
22	6·45	0·0120
40	5·9	0·0121
60	5·5	0·0110
	Mean=	0·0117

(iii) Diameter of the aperture = 2·65 cm.

0	7·13	...
26	6·4	0·0108
50	5·7	·0113
68	5·25	·0111
	Mean =	0·0111

Results.

Area of aperture (i) ... = 9·893 sq. cm.
Area of aperture (ii) ... = 7·495 sq. cm.
Area of aperture (iii) ... = 5·513 sq. cm.

	I	II	III
		If directly proportional to change in intensity.	If proportional to the square root of the change of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·0124}{0·117} = 1·06$	$\frac{9·893}{7·495} = 1·32$	$\sqrt{1·32} = 1·15$
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0·0124}{·0111} = 1·12$	$\frac{9·893}{5·513} = 1·79$	$\sqrt{1·79} = 1·34$
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·0117}{·0111} = 1·05$	$\frac{7·495}{5·513} = 1·36$	$\sqrt{1·36} = 1·17$

Here too, we find that the change in the velocities of the reaction in light of λ4725 Å is proportional to the square root of the changes in the intensities of the incident radiation.

II. CHROMIC ACID AND OXALIC ACID IN PRESENCE OF MANGANESE SULPHATE AND SULPHURIC ACID.

$H_2Cr_2O_7$ – N/421·3 ; $(COOH)_2$ – N/57·36 ; $MnSO_4$ – N/768·5 ; H_2SO_4 – N/2·8.

Filters 8 and 3 (λ 5000–4450Å).

Mean λ = 4725Å.

Temperature = 31°C.

(i) Diameter of aperture = 3·55 cm.

Time in minutes.	Sodium thiosulphate per 5 c.c. of the reacting mixture.	K_0* (Zero-molecular).
0	6·0 c. c.	...
3	5·2	0·267
8	3·9	·263
13	2·9	·239
17	2·0	·235
	Mean =	0·251

(ii) Diameter of aperture = 3·09 cm.

0	6·0 c. c.	...
5	4·95	0·210
12	3·4	·216
18	2·1	·217
23	1·5	·200
	Mean =	0·211

* The formula used for the Zero-molecular velocity coefficient $= K_0 = \frac{x}{t}$, where "x" is the change in concentration of chromic acid in "t" minutes.

(iii) Diameter of aperture = 2·65 cm.

0	6 0 c. c.	...
8	4·4	0·200
13	3·4	·200
19	2·2	·200
25	0·9	·204
	Mean =	0·201

The value of "K_o" in the darkness = 0·131

∴ Pure light effect in (i) = 0·120

" " " (ii) = 0·080

" " " (iii) = 0·070

Results.

		II	III
		If directly proportional to change in intensity.	If proportional to the square root of the change of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·120}{·080} = 1·50$	1·32	1·15
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0·120}{·070} = 1·71$	1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·080}{·070} = 1·14$	1·36	1·17

The values obtained in column I agree more closely to the values given in column II than to those in column III. Hence, the velocities of this reaction are directly proportional to the intensities of the incident radiation.

III. SODIUM CITRATE AND IODINE.

Sodium citrate – N/11·52 ; Iodine – N/100 ;

Potassium iodide — N/27.

No light filter was used.

Temperature = 32°C.

(i) Diameter of the aperture = 3·55 cm.

Time in minutes.	Sodium thiosulphate per 5 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$
0	8·6 c. c.	...
19	8·2	0·00726
38	7·8	·00732
56	7·5	·00700
76	7·1	·00700
	Mean =	0·00715

(ii) Diameter of the aperture = 3·09 cm.

0	8·6 c. c.	...
20	8·25	0·00600
50	7·7	·00632
80	7·25	·00600
100	6·95	·00614
	Mean =	0·00612

(iii) Diameter of the aperture = 2·65 cm.

0	8·6 c. c.	...
28	8·15	0·00550
50	7·8	·00556
75	7·45	·00541
100	7·1	·00556
	Mean =	0·00551

The corresponding value for "$K_{\frac{1}{2}}$" in the darkness = 0·00312

Therefore, effect of the pure light in (i) = 0·00403

" " (ii) = ·00300

" " (iii) = ·00239

Results.

I	II	III
	If directly proportional to incident intensity.	If proportional to the square root of the incident intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}} = \frac{0·00403}{·00300} = 1·34$	1·32	1·15
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0·00403}{·00039} = 1·69$	1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0·00300}{·00239} = 1·25$	1·36	1·17

That is, the velocities of this reaction are directly proportional to the intensities of the incident light.

IV. AMMONIUM OXALATE AND IODINE.

Ammonium oxalate—N/6·57; Iodine—N/100 ;
Potassium iodide—N/2·7.

Filters 8 and 3 (λ5000—4450 Å).

Mean λ=4725 Å.

Temperature=31·5°C.

(i) Diameter of the aperture = 3·55 cm.

Time in minutes.	Thio used per 5 c. c. of the reacting mixture.	$\frac{1}{2\cdot3} \times K_1$ (Unimolecular).
0	4·95 c. c.	...
10	4·5	0·00414
22	4·0	·00420
30	3·7	·00421
37	3·45	·00424
	Mean=	0·00420

(ii) Diameter of the aperture—3·09 cm.

0	4·95 c. c.	...
13	4·45	0·00356
25	4·05	·00350
32	3·8	·00359
38·5	3·6	·00361
	Mean=	0·00357

(iii) Diameter of the aperture=2·65 cm.

0	4·95 c. c.	
15	4·45	0·00308
30	4·0	·00308
42	3·65	·00315
60	3·2	·00316
	Mean =	0·00312

In this case, the velocity in the darkness is negligibly small in comparison with the values obtained in the above ex-

periments. Hence, the elimination of the superimposed thermal effect is not necessary in obtaining the following results:—

Results.

I	II		III
	If proportional directly to the change of intensity.		If proportional to the square root of the change of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}} = \frac{0{\cdot}00420}{{\cdot}00357} = 1{\cdot}176$		1·32	1·15
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}} = \frac{0{\cdot}00420}{{\cdot}00312} = 1{\cdot}346$		1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0{\cdot}00357}{{\cdot}00312} = 1{\cdot}144$		1·36	1·17

There is more concordance within the limits of experimental error between the values shown in columns I and III than between those in columns I and II.

Therefore, the velocities of this reaction vary proportionally to the square root of the changes in the intensities of the incident light.

V. SODIUM MALATE AND IODINE.

Sodium malate—N/6·78 ; Iodine—N/108·6 ; Potassium iodide —N/33·87.

No light filter was used.

Temperature = 30°C.

(i) Diameter of aperture = 3·55 cm.

Time in minutes.	Thio used per 5 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	4·95 c. c.	...
15	4·2	0·0221
33	3·5	·0214
45	3·1	·0206
62	2·65	·0193
	Mean =	0·0209

(ii) Diameter of aperture=3·09 cm.

Time in minutes.	Thio used per 5 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	4·95 c. c.	...
20	4·2	0·0176
40	3·55	·0171
55	3·05	·0174
72	2·6	·0170
	Mean=	0·0173

(iii) Diameter of the aperture=2·65 cm.

0	5·95 c. c.	...
22	4·2	0·0160
44	3·55	·0155
66	2·95	0154
84	2·5	·0153
	Mean=	0·0156

$K_{\frac{1}{2}}$ in the dark = 0·00203

Therefore, the effect of pure light in (i) = 0·0189
" " " " " " (ii) = ·0153
" " " " " " (iii) = ·0136

Results.

I		II	III
		If directly proportional to intensity.	If proportional to the square root of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$=\frac{0·0189}{·0153}=1·24$	1·32	1·15
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$=\frac{0·0189}{·0136}=1·39$	1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$=\frac{0·0153}{·0136}=1·13$	1·36	1·17

The velocities of this reaction are thus found to be directly proportional to the square-roots of the intensities of the incident light within the limits of experimental error.

VI. SODIUM NITRITE AND IODINE.

Sodium nitrite—0·56 N; Sodium acetate—N/7·29; Iodine—N/29·73; Potassium iodide—N/8·115.

Filters 8 and 3 (λ 5000—4450 Å.)

Mean λ = 4725 Å.

Temperature = 33°C.

(i) Diameter of the aperture = 3·55 cm.

Time in minutes.	Thio used per 5 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	8·9 c. c.	...
10	8·45	0·0170
30	7·6	·0151
50	6·75	·0154
70	5·95	·0153
	Mean=	0·0158

(ii) Diameter of the aperture = 3·09 cm.

0	8·9	...
15	8·3	0·0137
35	7·55	·0135
60	6·65	·0123
75	6·15	·0134
	Mean=	0·0132

(iii) Diameter of the aperture=2·65 cm.

Time in minutes.	Thio used per 5 c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	8·9	...
20	8·2	0·0120
40	7·5	0·0123
60	6·9	·0120
80	6·3	·0119
	Mean=	0·0121

The value of "$K_{\frac{1}{2}}$" in the darkness = 0·0052.

Therefore, the pure photochemical effect in (i) = 0·0106
" " " " " (ii) = ·0080
" " " " " (iii) = ·0069

Results.

I		II	III
		If directly proportional to the intensity of the light.	If proportional to the square root of the intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·0106}{·0080} = 1·33$	1·32	1·15
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0·0106}{·0069} = 1·55$	1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·0080}{·0069} = 1·16$	1·36	1·17

It is difficult to decide definitely whether the reaction is directly proportional to the intensity or is proportional to the square root. On the whole, from the experimental results it appears that the velocity of the reaction is proportional to the square root of the intensity.

VII. SODIUM FORMATE AND IODINE.

Sodium formate—N/6·42 ; Iodine—N/118·92 ; Potassium iodide—N/32·46 ; Sodium acetate N/7·29.

Filters 8 and 3 (λ 5000- 4450 Å).

Mean $\lambda = 4725$ Å.

Temperature = 30°C.

(i) Diameter of aperture = 3·55 cm.

Time in minutes.	Thio used per 5 c. c. of the mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	3·65 c. c.	...
8	2·6	0·0746
15	1·9	·0716
24	1·1	·0718
30	0·7	·0716
	Mean=	0·0723

(ii) Diameter of the aperture = 3·09 cm.

0	3·65 c. c.	...
8	2·8	0·0600
15	2·1	·0616
22	1·55	·0607
30	1·0	·0607
	Mean=	0·0607

(iii) Diameter of the aperture = 2·65 cm.

0	3·65 c. c.	...
9	2·8	0·0528
15·5	2·25	·0530
24·5	1·5	·0557
30	1·2	·0544
38	0·8	·0535
	Mean=	0·0539

The value of " K " in darkness = 0·0457.

Therefore, the effect of pure light in (i) = 0·0266

" " " " " " (ii) = 0·0150

" " " " " " (iii) = 0·0082

Results.

I	II		III
	If proportional to the squares of intensities of the incident light.		If directly proportional to the intensities.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}} = \frac{0·0255}{·0150}$	= 1·70	1·74	1·32
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}} = \frac{0·0266}{·0082}$	= 3·24	3·204	1·79
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0·0150}{·0082}$	= 1·83	1·85	1·36

From the above it is clear that the velocities of this reaction change directly to the squares of the intensities of the incident light.

VIII. SODIUM-POTASSIUM TARTRATE AND BROMINE IN PRESENCE OF SODIUM ACETATE.

Rochelle salt—N/18·345 ; Sodium acetate—N/7·29;

Bromine—N/210·9.

Filters 8 and 3 (λ 5000—4450 Å).

Mean λ = 4725 Å.

Temperature = 30°C.

(i) Diameter of the aperture = 3·55 cm.

Time in minutes.	Thio used per 3. c. c. of the reacting mixture.	1/2·3 × K₁ Unmole-(cular).
0*	5·0 c. c.	...
13	3·95	0·0236
21	2·5	0241
38	0·9	·0249
	Mean =	0·0242

* As there is an instantaneous reaction between sodium acetate and bromine the readings were commenced some time after the mixing up of the reactants.

The sodium acetate is added in order to avoid the difficulty that the hydrogen ion formed in the reaction greatly retards the change and disturbs the course of the reaction.

(ii) Diameter of the aperture = 3·09 cm.

0	7·8 c.c.	...
14	4·45	0·0174
23	3·05	0·0177
50	1·0	0·0178
	Mean=	0·0176

(iii) Diameter of the aperture = 2·65 cm.

0	7·15 c.c.	...
12	4·8	0·0144
32	2·5	·0143
80	0·5	·0144
	Mean=	0·0144

The corresponding "K" in the darkness = 0·0101
Therefore, pure light effect in (i) = 0·0141
" " " " (ii) = ·0075
" " " " (iii) = ·0043

Results.

I		II	III
		If proportional to the square of the intensities.	If directly proportional to the intensities.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·0141}{·0075} = 1·89$	1·74	1·32
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0·0141}{·0043} = 3·28$	3·204	1·79
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·0075}{·0043} = 1·74$	1·85	1·36

The velocities of this reaction vary, too, as the squares of the intensities of the incident light energy.

IX. FERROUS SULPHATE AND IODINE.

$FeSO_4$ — N/12 ; I – N/125 ; KI – N/37·5.

No filter was used.

Temperature = 19·5°C.

(i) Diameter of the aperture = 2·0 cm.

Time in minutes.	Thio for 3. c. c. of the reacting mixture.	$K_{\frac{1}{2}}$ (Semi-molecular).
0	41 c.c.	...
12	0·65	0·0190
25	3·2	·0190
36	2·8	·0196
54	2·25	·0194
66	1·85	·0202
	Mean =	0·0194

(ii) Diameter of the aperture = 1·2 cm.

0	4·1	...
15·5	3·75	0·0123
40	3·25	·0111
60	2·9	·0107
80	2·55	·0107
100	2·25	·0105
	Mean =	0·0111

(iii) Diameter of the aperture = 1·0 cm.

0	4·1	...
15	3·8	0·0101
65	2·8	·0108
85	2·75	·00861
105	2·5	·00844
	Mean =	0·00949

The corresponding " $K_{\frac{1}{2}}$ " in the dark = 0·00569

Therefore, the effect of light alone in (i) = 0·0137
" " " " " " " (ii) = 0·00541
" " " " " " " (iii) = 0·00380

Results.

	I	II	III
		If directly proportional to the intensity.	If proportional to the square root of the intensity of the incident light.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$ =	2·53	2·778	1·67
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$ =	3·61	4·00	2·00
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$ =	1·42	1·44	1·20

It appears from the above that the reaction between ferrous sulphate and iodine is directly proportional to the intensity of the incident light.

X. BLEACHING OF DICYANIN.

Initial strength of Dicyanin—M/27140
Filters 4 and 7 (λ 5850 – 5450 Å).

Mean λ = 5650 Å.

Zero correction=0·48 on the Density scale.
Thickness of observation cell = 0·385 cm.

Temperature = 31°C.

(i) Diameter of the aperture=3·55 cm.

Time in minutes.	Reading on the density scale.	Corrected reading on the density scale.	Extinction co-efficient.	$\frac{1}{2\cdot3} \times K_1$
0	1·02	0·54	1·4026	...
22	0·95	·47	1·2208	0·002740
52	0·88	·40	1·0389	·002507
100	·76	·28	0·7273	·002852
130	·72	·24	·6234	·002709
176	·65	·17	·4416	·002847
			Mean=	0·002731

(ii) Diameter of the aperture = 3·09 cm.

0	1·02	0·54	1·4026	...
30	0·95	·47	1·2208	0·002010
85	·84	·36	0·9351	·002071
120	·78	·30	·7792	·002127
164	·72	·24	·6234	·002147
			Mean=	0·002089

(iii) Diameter of the aperture = 2·65 cm.

0	1·02	0·54	1·40261	...
40	0·94	·46	1·1948	0·001741
100	·84	·36	0·9351	·00176
125	·80	·32	·8311	·001818
155	·76	·28	·7273	·001840
			Mean =	0·001790

"K_1" in the dark = 0·000902

Therefore, the pure photochemical reaction in (i) = 0·001829

" " " " " (ii) = ·001187

" " " " " (iii) = ·000888

Results.

	I	II	III
		If directly proportional to the intensity.	If proportional to the square root of the intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}} = \frac{0·001829}{·001187}$	= 1·54	1·32	1·15
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}} = \frac{0·001829}{·000888}$	= 2·06	1·79	1·34
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0·001187}{·000888}$	= 1·34	1·36	1·17

The rate of this change is directly proportional to the intensity of the incident light.

XI. OXIDATION OF IODOFORM IN BENZENE AS SOLVENT.

M/40—Iodoform in Benzene.

For estimating the iodine concentrations, 3 c. c. of the mixture was withdrawn at intervals and run into a large excess of cold water and removed to darkness where it was kept for 30 minutes before titration with standardised sodium thiosulphate—the same amount of dilute starch solution being used every time as indicator.

No light filter was used.

Temperature=23°C.

(i) Diameter of the aperture=1·6 cm.

Time in minutes.	Thio used per 3 c. c. solution.	K_0 (Zero-molecular).
0*	3·15 c c.	...
6	3·75	0·100
14	4·6	·104
25	5·9	·110
	Mean =	0·105
(ii) Diameter of the aperture=1·4 cm.		
0	3·2	...
7	3·75	0·0800
18	4·6	·0800
28	5·5	·0821
	Mean =	0·0807

* The Zero-time in the above experiments was noted some minutes after the light was turned on.

(iii) Diameter of the aperture = 1·0 cm.

0	3·25	...
9	3·6	0·0390
17	3·9	·0382
27	4·3	·0390
	Mean =	0·0387

Results.

I	II	III
	If proportional direct to change of intensity.	If proportional to the square root of the change in intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}} = \frac{0·105}{·0807} = 1·301$	1·304	1·142
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}} = \frac{0·105}{·0387} = 2·713$	2·560	1·600
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}} = \frac{0·0807}{·0387} = 2·085$	1·963	1·401

Thus, the velocities of this reaction change proportionally to the intensity of the incident light.

XII. SODIUM FORMATE AND MERCURIC CHLORIDE IN PRESENCE OF SODIUM ACETATE.

Sodium formate—0·898 N ; Mercuric chloride—N/15 ; Sodium acetate—0·2813 gm. in 20 c. c.

The change in the concentration of mercuric chloride was determined by drawing out 3 c. c. of the reacting mixture at noted intervals, running it into an excess of potassium iodide solution of known strength and titrating back the remaining potassium-iodide with a standardised solution of mercuric chloride.

No light filter was used.

Temperature = 20°C.

(i) Diameter of the aperture = 2·0 cm.

Time in minutes.	Gram-mol. of mercuric chloride per 3 c. c. of the solution.	$\frac{1}{2 \cdot 3} \times K_1$
0	0·0001823	...
44	·0001555	0·00157
102	·0001265	·00156
180	·00009486	·001568
	Mean =	0·00157

(ii) Diameter of the aperture = 1·2 cm.

0	0·0001820	...
50	·0001618	0·00104
110	·0001414	·00104
139	·0001302	·00105
	Mean =	0·00104

(iii) Diameter of the aperture = 1·0 cm.

0	0·0001823	...
47	·0001678	0·000866
120	·0001476	·000864
180	·0001322	·000875
	Mean =	0·000868

"K_1" in the dark = 0·000662.

Therefore, the value of "K_1" in pure light in (i) = 0·000908
" " " " " (ii)= ·000378
" " " " " (iii)= ·000217

Results.

	I	II	III
		If directly proportional to the intensity.	If proportional to the square-root of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0·000908}{·000378} = 2·40$	2·778	1·67
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0·000908}{·000217} = 4·19$	4·00	2·00
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0·000378}{·000217} = 1·74$	1·44	1·20

From the above, it is clear that the reaction is directly proportional to the intensity of the incident light.

XIII. AMMONIUM OXALATE AND MERCURIC CHLORIDE IN PRESENCE OF EOSIN AS A SENSITISER.

Mercuric chloride—M/50 ; ammonium oxalate—M/5 ; Eosin—M/20500.

No light filter was used.

Temperature = 21·5°C.

(i) Diameter of the aperture = 2·0 cm.

Time in minutes.	Gram-mol. of mercuric chloride per 3 c. c	$\frac{1}{2·3} \times K_1$
0	0·00002405	...
36	·00001904	0·00282
74	·00001501	·02777
97	·00001293	·00273
	Mean=	0·00279

(ii) Diameter of the aperture = 1·2 cm.

Time in minutes.	Gram-mol. of mercuric chloride per 3 c.c.	$\frac{1}{2\cdot3} \times K_1$
0	0·00002405	...
34	·00002099	0·00174
71	·00001800	·00177
115	·00001501	·00178
	Mean =	0·00176

(iii) Diameter of the aperture = 1·0 cm.

0	0·00002405	...
28	·00002173	0·00157
60	·00001955	·00150
128	·00001501	·00161
	Mean =	0·00156

Results.

I			II	III
			If directly proportional to incident intensity.	If proportional to the square-root of change of intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	$= \frac{0\cdot00279}{\cdot00176}$	= 1·59	2·78	1·67
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	$= \frac{0\cdot00279}{\cdot00156}$	= 1·80	4·00	2·00
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	$= \frac{0\cdot00176}{\cdot00156}$	= 1·13	1·44	1·20

From the above, it is apparent that the rates of the reaction are proportional to the square roots of the ratios of the change of incident intensities.

XIV. POTASSIUM PERMANGANATE AND OXALIC ACID IN PRESENCE OF MANGANOUS SULPHATE AND SULPHURIC ACID

Potassium permanganate—N/444·4 ; Oxalic acid—N/32 ; Manganous sulphate — N/364·28 ; Sulphuric acid = N/2·7

Filters 8 and 3 (λ 5000—4450 Å).

Mean λ = 4725 Å.

Temperature = 16°C.

(i) Diameter of the aperture = 2·0 cm.

Time in minutes.	Sodium thiosulphate per 3 c. c. of the reacting mixture.	$\frac{1}{2\cdot3} \times K_1$
0	3·615 c. c.	...
1	2·35	0·188
2·17	1·45	·183
3	1·0	·186
3·9	0·75	·183
	Mean =	0·183

(ii) Diameter of the aperture=1·2 cm.

Time in minutes.	Sodium thiosulphate per 3 c. c. of the reacting mixture.	$\frac{1}{2·3} \times K_1$
0	3·625 c. c.	...
1	2·5	0·161
2·2	1·65	·156
3·25	1·05	·166
4·25	0·75	·161
	Mean =	0·161

(iii) Diameter of the aperture=1·0 cm.

0	3·625 c. c.	...
1·17	2·5	0·147
2·42	1·65	·142
3·83	1·0	·146
4·83	0·75	·142
	Mean =	0·144

"K" in the dark at 16°C=0·0552

Therefore, the value of "K" in pure light in (i) = 0·130

" " " " " (ii) = ·106

" " " " " (iii) = ·0888

Results.

I			II	III
			If proportional direct to the intensity.	If proportional to the square-root of the intensity.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}$	=	$\frac{0·130}{·106}$ = 1·23	2·78	1·67
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}$	=	$\frac{0·130}{·0888}$ = 1·46	4·00	2·00
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}$	=	$\frac{0·106}{·0888}$ = 1·19	1·44	1·20

From the above table it is clear that though the velocity of this reaction increases appreciably with the increase in the intensity of the incident light yet there is no simple relation between the two.

XV. QUININE SULPHATE AND CHROMIC ACID IN PRESENCE OF SULPHURIC ACID.

Quinine sulphate—M/75 in N/2—H_2SO_4 ; Chromic acid—M/80·88 ; Sulphuric acid—1·32 N.

No light filter was used.

Temperature = 29°C.

(i) Diameter of the aperture = 1·6 cm.

Time in minutes.	$Na_2S_2O_3$ per 3 c. c. of the reacting mixture.	$\frac{1}{2\cdot3} \times K_1$
0	6·15 c. c.	...
15	5·25	0·00458
35	4·2	·00473
58	3·2	·00489
	Mean =	0·00473

(ii) Diameter of the aperture = 1·2 cm.

0	6·15	...
20	5·75	0·00146
48	5·2	·00152
70	4·8	·00154
	Mean =	0·00151

(iii) Diameter of the aperture=1·0 cm.

Time in minutes.	$Na_2S_2O_3$ per 3 c. c. of the reacting mixture.	$\frac{1}{2\cdot3}\times K_1$
0	5·15	...
21	5·8	0·000857
42	5·65	·000879
85	5·2	·000858
	Mean =	0·000865

"K" in the dark at 29°C=0·000265

Therefore, the value of "K" in pure light in (i) = 0·00447
" " " " " " " " (ii) = ·00125
" " " " " " " " (iii) = ·000600

Results.

I	II	III
	If proportional to the square of the incident intensity.	If proportional directly to the intensity of the light.
$\frac{\text{Velocity (i)}}{\text{Velocity (ii)}}=\frac{0\cdot00447}{\cdot00125}=3\cdot58$	3·13	1·77
$\frac{\text{Velocity (i)}}{\text{Velocity (iii)}}=\frac{0\cdot00447}{\cdot000600}=7\cdot45$	6·55	2·56
$\frac{\text{Velocity (ii)}}{\text{Velocity (iii)}}=\frac{0\cdot00125}{\cdot000600}=2\cdot83$	2·47	1·44

It is apparent that the velocity of this reaction is proportional to the square of the intensity of the incident light within the limits of experimental error.

DISCUSSION.

From the foregoing results it will be seen that the reactions investigated in this paper can be divided into the following three classes with regard to the influence of the intensity of the incident light on the velocity of the reactions:—

Velocity of the reactions proportional to the square of the intensity of the incident light.	Velocity of the reactions proportional to the square root of the intensity of the incident light.	Velocity of the reactions proportional directly to the intensity of the incident light.
(i) Sodium formate and Iodine.	(i) Potassium oxalate and Iodine.	(i) Chromic acid and oxalic acid.
(ii) Rochelle salt and Bromine.	(ii) Ammonium oxalate and Iodine.	(ii) Sodium citrate and Iodine.
(iii) Quinine sulphate and Chromic acid.	(iii) Sodium malate and Iodine.	(iii) Oxidation of iodoform in benzene medium.
	(iv) Ammonium oxalate and mercuric chloride in presence of eosin.	(iv) Sodium formate and mercuric chloride.
	(v) Sodium nitrite and Iodine.	(v) Bleaching of Dicyanin.

The reaction between potassium permanganate and oxalic acid is slightly influenced by the light—the velocity changing at a ratio which is even less than the square root of the intensity of the incident light. There is also some difficulty in assigning a definite position to the reaction between ferrous sulphate and iodine in the above table.

It is very difficult to find out a theoretical significance for all these groups of reactions. If the velocities of the reactions in the dark are not deducted from the respective total values obtained in the light, the majority of the reactions involving iodine as one of the reactants fall into the second group—that is, the reaction velocities are proportional to the square-root of the incident light.

Now, in the cases of reactions where iodine is one of the reacting substances, we have observed that the reactions are semi-molecular with respect to iodine. It is very likely, therefore, that in all the reactions involving iodine as the photo-active constituent, the chemical changes take place between atoms of iodine. If we assume that in such reactions the atomic iodine is the photo-active substance then,

$$K_1 X [I_2] = K_2 [I]^2$$

$$\therefore I = \frac{K_1^{\frac{1}{2}}}{K_2^{\frac{1}{2}}} X^{\frac{1}{2}} \left[I_2\right]^{\frac{1}{2}}$$

where X is the intensity of the incident light and K_1 and K_2 are constants.

This explains that the rate of disappearance of iodine follows as the square-root of the intensity of the incident illumination.

It may be noted from the above table that the reactions placed in the second group—that is, the reactions whose velocity changes as the square-root of the intensity are very prominently photochemical in nature. Such markedly photochemical changes when once started by light are not so much affected by increasing the intensity of illumination (as is evident by their velocities changing proportionally only as the square root of the intensity) as those reactions which are not so photosensitive.

The reactions between sodium formate and iodine and sodium citrate and iodine though semi-molecular with

respect to iodine do not fall in the second category. The reason for this may be attributed to the fact that neither of these reactions is so much accelerated by light as any of the changes placed in the second group. It is difficult to assign, however, any definite reason for the fact that while both the changes are not very remarkably photochemical in nature, the former reaction is so very sensitive to the influence of intensity as to change proportionally with its second power whereas the latter, the reaction between sodium citrate and iodine, changes proportionally only as the first power of the intensity.

From our present state of knowledge it is also difficult to explain why of all the other reactions investigated in this paper the reaction between quinine sulphate and chromic acid though very markedly photosensitive is so profoundly affected by the variations in the intensity of the light as to change as the square of the intensity. It may be noted, however, that though the reaction is unimolecular with respect to chromic acid the reaction is quite complex and that the quinine sulphate solution also exhibits a marked absorption of light in the visible region.

Similar difficulty is felt in explaining the peculiar behaviour of the reaction between potassium permanganate and oxalic acid in that the velocity of this change is very little affected by changing the intensity of the incident light.

In those cases where the velocities are directly proportional to the intensity of the incident light it may be pointed out that when the molecules become activated by the absorption of radiation they decompose or react without any further alteration and the velocities of the reactions change proportionally to the intensity of the incident radiation.

From the present series of experiments we have come to the conclusion that the reactions between mercuric

chloride and ammonium oxalate is proportional to the square root of the intensity of the incident radiation. An explanation for such behaviour can be offered as follows :—

Dhar[1] has proved that the reaction between mercuric chloride and potassium oxalate is bi-molecular in the dark, though the chemical change may be represented by the following equation :

$$2\,HgCl_2 + (NH_4)_2C_2O_4 = Hg_2Cl_2 + 2NH_4Cl + 2CO_2$$

In view of the above equation the reaction ought to be tri-molecular; whereas, it is found to be bi-molecular according to the kinetic measurements. It is apparent, that in the change taking place thermally the mercuric chloride molecules react in the polymerised form Hg_2Cl_4 without dissociation, whereas in the reaction taking place photochemically the Hg_2Cl_4 molecules break up into a pair of $HgCl_2$ molecules just as molecular iodine atomises into iodine atoms ; and hence, this reaction is proportional to the square root of the incident radiation.

The bleaching of dicyanin and the oxidation of iodoform in benzene are directly proportional to the change in the intensity of the incident radiation.

Hence, it appears that when the molecules of iodoform and Dicyanin become activated by the absorption of radiation they decompose and the velocities of the reactions change proportionally to the intensity of the incident radiation. On the other hand, in the reaction between mercuric chloride and sodium formate the velocity is directly proportional to the intensity of the incident radiation. It should be noted, however, that the reaction between ammonium oxalate and mercuric chloride is far more photosensitive than the reaction between mercuric chloride and sodium formate. Moreover, the velocity of the dark reaction between mercuric chloride and ammonium oxalate

[1] Jour. Chem. Soc., *111*, 707 (1917).

is practically negligible in comparison with the light reaction. Similarly, the dark reaction velocity in the case of sodium malate and iodine is negligibly small in comparison with the reaction in the light. But the reaction between sodium formate and iodine proceeds in the dark at a rate which is appreciable in comparison with the light reaction.

It appears, therefore, that the reactions which are really photochemical in nature are likely to be proportional to the square root of the intensity of the incident radiation. It seems reasonable to expect that in such reactions the velocities of the chemical change should not be altered a great deal when the reactions have started once by the absorption of the minimum quantity of energy. Hence, these reactions should be proportional to powers less than unity of the incident light.

As regards the reaction between potassium oxalate and iodine it may be remarked that the effect of the intensity of light on this reaction was not studied by Dhar as is generally assumed by some authors. It is only very recently that we took up this investigation and the results are quite in line with the conclusions arrived at by Berthoud and Bellenot[1] and recently by Briers, Chapman and Walters.[2] Proportionality between the intensity of light and the velocity has been found in the cases of the following reactions:—

Hydrolysis of the chloroplatinic acid,[3] the decomposition of hydrogen peroxide,[4] the decompositions of potassium cobalti-oxalate[5] and potassium mangani-oxalate,[6] and for the initial stages of the photolysis of the uranyl formate solutions.[7]

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[1] Helv. Chim. Acta, *7*, 307 (1924).
[2] Jour. Chem. Soc., *129*, 562 (1926).
[3] Ann. Physique (ix), *2*, 5, 226 (1914).
[4] Tian. ibid. (ix), *5*, 248 (1916).
[5] J. Vranek, Z. Elektrochem., *23*, 336 (1917).
[6] Ghosh and Kappana: Jour. Ind. Chem. Soc., *3*, 127 (1926).
[7] E. C. Hatt: Z. Physikal Chem., *92*, 513 (1918).

In all these cases it is difficult to imagine the reactant molecules to be breaking up into simpler constituents as the result of the absorption of light. Hence it is expected that in all these changes the velocities of the reactions would be directly proportional to the intensity of the incident radiation.

In the reaction between chlorine and hydrogen there is considerable difference of opinion among different workers with regard to the influence of the incident radiation on the velocity of the chemical change. M. C. C. Chapman,[1] Marshall[2] and Kornfeld and Muller[3] have upheld that the reaction is directly proportional to the incident radiation. On the other hand Berthoud[4] suggests that the reaction is proportional to the square root of the intensity. Baly and Barker,[5] however, support that the reaction is proportional to $(I)^{\frac{3}{2}}$. It is very difficult to differentiate between these divergent results. If the reaction velocity be dependent on the square root of the intensity it can be assumed that the chlorine molecules are first dissociated into atoms.

Now the heat of dissociation of chlorine molecule is 55,000 calories corresponding to the wave-length 0·52 μ. It is well-known that the mixture of hydrogen and chlorine combines in sunlight and in that light the mean wave-length in the visible region is about 5,000 Å. It seems quite possible that even in the combination of chlorine and hydrogen atoms of chlorine take part and the reaction velocity is proportional to the square root of the intensity of light.

In this connection it will be interesting to observe that Bodenstein and Lütkemeyer[6] have shown that the rate of

[1] Jour. Chem. Soc., *125*, 1521 (1924).
[2] Jour. Phys. Chem., *29*, 842 (1925).
[3] Unpublished data.
[4] Helv. Chim. Acta, *7*, 324 (1924).
[5] Jour. Chem. Soc., *119*, 653 (1921).
[6] Z. Physikal Chem., *114*, 208 (1924).

reaction between hydrogen and bromine is proportional to the square root of the light absorbed.

It is difficult to assign any reason for the facts that the reaction between quinine sulphate and chromic acid, rochelle salt and bromine, and sodium formate and iodine proceeds at rates which are proportional to the squares of the intensity of the incident light. As far as we know no such case has been recorded before. The only reaction where the velocity is proportional to the intensity of radiation of a power greater than unity is the photo-combination of hydrogen and chlorine as investigated by Baly and Barker.[1] Unfortunately, the theoretical significance of such behaviour is still uncertain.

[1] Loc. cit.

DYES DERIVED FROM HIGHER DIBASIC FATTY ACIDS

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According to the well known Strain theory of Baeyer cyclic compounds containing five and six members in the ring should be the most stable, while the stability will gradually decrease as this limit is exceeded in either directions. With all the data that are at present available regarding the stability of the ring systems, it can be conclusively proved that though the three and four membered rings are quite capable of existence nevertheless they are very unstable and the rupture of such ring systems is quite an easy affair. But the same cannot be said with regard to cyclic compounds containing more than six members. For instance adipic anhydride which contains a seven membered ring has been proved to be a definite identity while the case of diphenic anhydride and suberone, also containing seven membered ring are particularly well known. By condensing diphenic anhydride with aromatic amino-, and hydroxy- compounds (Dutt, J., 1923, *123*, 222) a series of dyestuffs belonging to the pyronine group is obtained, the colours of which were so light, that there is no doubt about the fact that in these compounds the seven membered ring assumes a character of great stability.

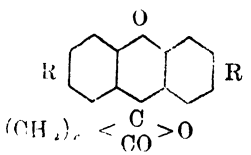
About an eight membered ring, there is at present hardly any definite compound known containing such a

ring system, though from time to time various authors in their publications have assumed the existence of such ring formation. The most notable example in this connection is that Borsche who is quite emphatic in his assertion that the ketone which he prepared from azelaic acid is really cyclo-octanone. Apart from that examples of cyclic compounds containing more than eight members are very little known.

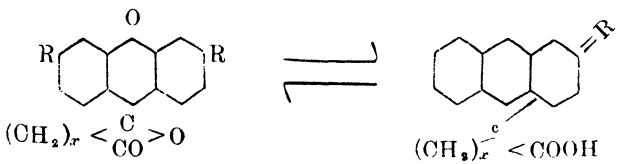
All these data, somewhat scarce and conflicting though they are, yet they clearly show that cyclic compounds containing more than six members are quite capable of formation and existence. If a string of several carbon atoms are arranged in space linked with one another by single linkage with due conformation to their proper valency directions, then it will be clearly seen that instead of a straight line the carbon atoms get arranged in a spiral, with a tendency towards the formation of a complete cycle after every fifth carbon atom. Considered in that light it will be clearly seen that a five membered ring will be the most stable of all when the two ends of a spiral just complete a circle and the stability will gradually decrease until it reaches a minimum with the seventh member, when the two ends of the spiral are diametrically opposite to one another. After that the stability will again begin to increase with the eighth and ninth member since the ends of the spiral are tending to complete their second cycle, and reach a culmination with the tenth member, when the ends are again near to each other.

In order to prove the truth of such a hypothesis the following five acids, viz., adipic, pimelic, suberic, azelaic and sebacic acids have been condensed with resorcinol and metadiethylamidophenol with the formation of fluorescein and rhodamine like compounds. The intensity of their colour in solution is inversely proportional to the stability of the ring systems constituting their anhydrides as can be

easily seen from the following configuration representing their general formula



where R=OH or N $(C_2H_5)_2$ and x may be anything from 4 to 8. Such a compound on solution in alkali or acid will undergo fission of the lactone ring with the formation of a quinonoid structure and consequent development of colour (Dutt, and Thorpe, J., 1924, *125*, 2524, Dutt, J., 1926, 129, 1132). Thus:—



where R_1 = : O or : N $(C_2H_5)_2$

Therefore it will be clearly seen that the greater the stability of lactone ring the less will be the colour development and vice versa. Actual data that have been obtained with regard to the intensity of colour of this series of compounds, show that they are in perfect accordance with the above supposition. The greatest development of colour is seen in the case of compounds derived from adipic acid while the least is seen in the cases of azelaic and sebacic acids.

Almost all these compounds in general properties, colour and fluorescence resemble the corresponding derivatives of succinic acid.

*

EXPERIMENTAL.

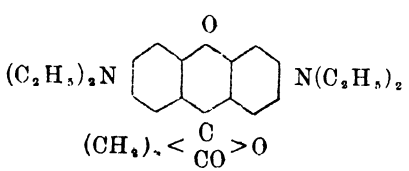
Resorcinoladipien.

Adipic acid was prepared from cyclohexanone. 50 c.c. of concentrated nitric acid was heated on a water-bath in a one-litre flask fitted with a dropping funnel and a reflux condenser. About 25 c.c. of cyclohexanone were run in as fast as possible up to the capacity of the condenser. When the action was over, the contents of the flask were poured into an open vessel to cool. It was next filtered and washed with a little water and dried. (Yield 17 gms.)

5·5 gms. (1 Mol.) of adipic acid, 8·4 gms. (2 Mols.) of resorcinol, and 2 c.c. of concentrated sulphuric acid were heated together at 170—180° for 3-4 hours. The condensed product was repeatedly washed with hot water to remove uncondensed resorcinol and the acid. It was next dissolved in ammonia solution and reprecipitated by dilute hydrochloric acid. Finally it was crystallised from acetic acid. Dark brown crystals which do not melt at 286°. It dissolves in alkalis to give unlike succinic acid a deep red solution. This point is being studied further. The solution in caustic soda or caustic potash decomposes very rapidly, while that in ammonia is fairly stable.

(Found C=68·74, H=4·7 ; $C_{18}H_{16}O_5$ requires C=69·2, H=5·1)

4:4′ Tetraethyl diamino—2:2′ oxidophenyladipien.



Adipic acid (2·9 gms.) and metadiethyl amido phenol were heated together with a few drops of

concentrated sulphuric acid at 120°—130° for about 20 hours, when the melt assumed a dark colour and gave a deep pink coloration with hydrochloric acid. The product was washed with water and then dissolved in dilute hydrochloric acid and precipitated by a cold dilute solution of sodium carbonate. The pink coloured powder was next crystallised from an alcoholic solution. Dark crystals sinter at 138°C.

Found N=6·2 C_{28} H_{14} N_2 O_4 requires N=6·6

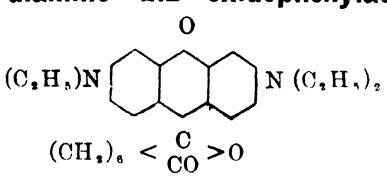
Resorcinolsubercin. $O < \begin{matrix} C_6H_3(OH) \\ C_6H_3(OH) \end{matrix} > C < \begin{matrix} (CH_2)6 \\ O \end{matrix} > CO$

1·7 gms. of suberic acid and 2·2 gms. of resorcinol together with 0·5 c.c. of concentrated sulphuric acid were heated to 170° and kept at that temperature for about 4 hours, till the melt hardened into a dark coloured solid. The product was washed and dissolved in caustic alkali and precipitated by dilute hydrochloric. It was finally crystallised from a five per cent. solution of hydrochloric acid into flat, glistening yellow small crystals. For combustion the crystals were redissolved in ammonia solution and reprecipitated by acetic acid. The substance dissolves in alkalis giving deep yellow solution with a green fluorescence. M.P. 140°C.

Found C= 70·0 %, H= 5·8 %

C_{20} H_{20} O_5 requires C= 70·5 % and H= 5·9 %

4:4′ Tetraethyl diamino—2:2′ oxidophenyladipien.



Suberic acid (1·7 gms.) and metadiethylamidophenol and a few drops of concentrated sulphuric acid were heated at 120°—130° for about 18 hours, when the melt

assumed a dark colour and gave deep pink coloration with dilute hydrochloric acid. The product was repeatedly washed with water and finally dissolved in dilute hydrochloric acid, whence it was precipitated by a cold solution of sodium carbonate. It could not be crystallised. M.P. 147°C.

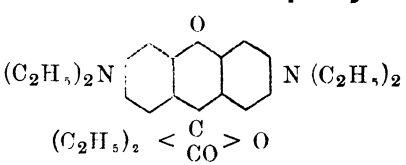
Found N = 6·1 % and $C_{21}H_{31}O_5N_3$ requires N = 6·2 %

Resorcinolazelain. $O<\begin{matrix}C_6H_3(OH)\\C_6H_3(OH)\end{matrix}>C<\begin{matrix}(CH_2)_7\\O\end{matrix}>CO$

1·9 gms. of azelaic acid, 2·2 gms. of resorcinol and 0·5 c.c. of concentrated sulphuric acid were heated to 170°—180° and kept at that temperature for about 6 hours. The melt was next washed free of the uncondensed products and dissolved in caustic soda. The alkaline solution on being acidified with hydrochloric acid threw down a brown precipitate, which crystallised from glacial acetic acid into chocolate brown crystals melting at 172°C.

Found C = 70·8, H = 6·0 ; $C_{21}H_{22}O_5$ requires
C = 71·2, H = 6·04.

4:4′ Tetraethyl diamino—2:2′ oxidophenyladipien.



$(C_2H_5)_2C<\begin{matrix}C\\CO\end{matrix}>O$

1·9 gms. of azelaic acid was mixed with 3·3 gms. of meta-diethyl amido phenol and the mixture slowly heated to 130° and kept at that temperature for about 36 hours, care being taken that the temperature never exceeds that temperature otherwise other products of condensation result. The melt was afterwards dissolved in dilute hydrochloric acid and precipitated by sodium carbonate solution. The dye obtained could not be properly crystallised. It is chocolate red powder dis-

solving in dilute hydrochloric acid with a pink colour. M.P. 126°C.

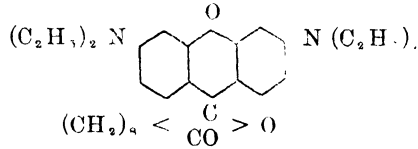
Found N=6·0
Theoretical N=6·03

Resorcinolsebaccin. $O < \begin{matrix} C_6H_3(OH) \\ C_6H_3(OH) \end{matrix} > C < \begin{matrix} (CH_2)_8 \\ O \end{matrix} > CO$

2·2 gms. of sebacic acid, 2·2 gms. of resorcinol and 0·5 c.c. of concentrated sulphuric acid were heated together for about two hours at 180°. The melt on solidification was powdered, washed free from the excess of uncondensed sebacic acid and resorcin and then dissolved in caustic soda. It was filtered and precipitated by a dilute solution of hydrochloric acid. The precipitate obtained as such is an oxonium compound of resorcinolsebacein (as in all analogous compounds mentioned in this paper). Consequently for combustion the substance was dissolved in ammonia solution and reprecipitated by acetic acid. The substance could not be crystallised. It dissolves in caustic soda solution with a brown solution which becomes yellow on dilution and at the same time a green fluorescence. Sinters at 166°C.

C=71·22, H= 6·1
C=71·74, H= 6·5

4:4′ Tetraethyl diamino—2:2′ oxidophenyladipien.



2·1 gms. of sebacic acid was heated with 3·3 gms. of meta-diethylaminophenol. The melt washed with water and dissolved in dilute hydrochloric acid and the dye precipitated by a dilute solution of sodium carbonate. M.P. 142°C.

Found N=5·2 $C_{30}H_{42}N_2O_3$ requires N=5·6

THE CONSTITUTION OF INDIAN KAMALA PART IIA

BY

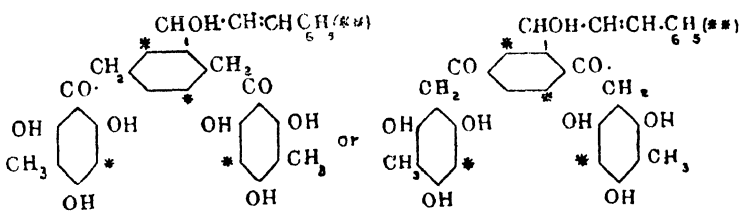
SIKHIBHUSHAN DUTT AND DHANRAJ PURI GOSWAMI

In a previous paper by one of the present authors (J., 1925, *127*, 2044), rottlerin—the colouring matter of Indian Kamala, or Rori as it is commonly called in the United Provinces, was isolated and its constitution investigated to a considerable extent by studying the degradation products of the substance and its derivatives under the influence of various chemical reagents. From the results of that investigation it was concluded that rottlerin must have the molecular formula $C_{33}H_{30}O_9$, and that it must contain four benzene nuclei, of which (1) two must be phloroglucinol residues, (2) one must be in the residue $C_6H_5.CH:CH.C.$ and (3) one must be a benzene nucleus containing at least three side-chains. The present investigation was therefore undertaken to elucidate further the constitution of the substance.

The method of attack at the problem, undertaken in the present investigation, was by nitration and bromination of acetyl-, and methoxy-rottlerin, and subsequent degradation of the nitro-, and bromo-, acetyl-, and methoxy-rottlerin thus formed, by oxidation with neutral potassium permanganate. In almost every case a 2, 4-disubstituted benzoic acid was isolated together with some 3, 6-disubstituted phthalic and 2, 5-disubstituted tere-phthalic acids. The identification of the latter acids was a matter of considerable difficulty, but was finally overcome by heating with sodalime, when para-disubstituted benzenes were obtained. Thus hepta-acetyl-

rottlerin on nitration with fuming nitric acid gave a hexa-nitro compound, which by oxidation with neutral potassium permanganate gave 2, 4-dinitro-benzoic acid together with 3, 6-dinitro-phthalic acid and 2, 5-dinitro-terephthalic acid. The identification of the latter acids was carried out by heating with sodalime when p-dinitro-benzene was obtained in each case. Hepta-acetyl-rottlerin on bromination with excess of bromine in acetic acid solution under pressure gave a hexa-bromo-hepta-acetyl-rottlerin, which on oxidation with permanganate gave 2, 4-dibromo-benzoic acid and a mixture of phthalic and terephthalic acids. Hexa-methoxy-rottlerin on nitration with fuming nitric acid gave a hexanitro compound which on similar oxidation with permanganate gave a mixture of 2, 4-dinitro-benzoic acid, 3, 6-dinitrophthalic and 2, 5-dinitro-terephthalic acids. In none of the above cases of degradation however could any derivative of phloroglucinol be isolated.

From the experimental results of this paper and those of the previous communication, it seems fairly conclusive that rottlerin has probably either of the following constitutions:—



1 2

The positions indicated by asterisks are probably the positions taken up by nitro groups in nitro-acetyl and nitro-methoxy-rottlerin. The structures of rottlerin suggested above are of course provisional subject to further investigation and revision.

EXPERIMENTAL

Hexanitro-heptaacetyl-rottlerin—

$C_{33}H_{17}O_9(NO_2)_6(C_2H_3O)_7$

Ten grams of heptaacetyl-rottlerin were gradually added to 50 c.c. of fuming nitric acid (S. G. 1. 52) in the cold. The acetyl-derivative very rapidly dissolved in the acid, and when the addition was complete, the solution was warmed on the water bath for about half an hour. On pouring into water the hexa-nitro compound separated in yellow flocks which were filtered off, washed with water and finally crystallised from dilute alcohol.

It is a yellow crystalline substance which is fairly soluble in most of the organic solvents but insoluble in water. On heating it does not melt, but gradually darkens in colour and finally decomposes with evolution of gas. When suddenly heated to a high temperature it decomposes with a mild explosion. (Found: N=7. 1; $C_{33}H_{17}O_9(NO_2)_6(C_2H_3O)_7$ requires N=7. 4%)

Hexanitro-rottlerin—$C_{33}H_{24}O_9(NO_2)_6$.

Five grams of the above nitro-acetyl derivative were heated on the water bath with 200 c.c. of a 3% solution of sodium hydroxide for about an hour, when the compound completely dissolved and the solution was of a dark red colour. On acidifying with dilute hydrochloric acid the hexa-nitro compound was precipitated in orange flocks which were collected and crystallised from dilute acetic acid in fine orange needles.

The substance is fairly soluble in most of the organic solvents and to a slight extent in water, yielding intense yellow-coloured solutions. On heating it does not melt, but at about 200° it gives off gas with explosive violence. When suddenly heated to a high temperature it explodes violently. (Found: N=9. 5; $C_{33}H_{24}O_9(NO_2)_6$ requires N=10. 0%)

Oxidation of Hexanitro-heptaacetyl-rottlerin with potassium permanganate.

The oxidation was carried out as in the case of hepta-acetyl-rottlerin (Dutt, J., 1925, loc. cit.) by potassium permanganate in neutral solution. When the reaction was complete, the brown crystalline residue obtained after removal of the oxides of manganese, etc., by sulphur dioxide was filtered off and the mother liquor also extracted several times with ether. The ether was distilled off and the residue added to the previous residue and the whole crystallised from dilute alcohol. A colourless crystalline acid was obtained melting at 179°, which was definitely identified to be 2, 4-dinitro-benzoic acid.

The alcoholic mother liquor on evaporation to dryness gave a colourless crystalline residue which on repeated fractional crystallisation from water, was resolved into two acids melting at 200° and 278° respectively with decomposition. The former was identified to be 3, 6-dinitro-phthalic acid while the latter was found to be 2, 5-dinitro-terephthalic acid. Each of these two substances on dry distillation with sodalime gave p-dinitro-benzene, M. P. 172°.

Hexabromo-heptaacetyl-rottlerin—

$$C_{33}H_{17}O_9Br_6(C_2H_3O)_7$$

Ten grams of heptaacetyl-rottlerin, 25 grams of bromine and 20 c. c. of glacial acetic acid were heated in a sealed tube under pressure at 170° for about six hours. The product was isolated in the form of a brown amorphous powder. It could not be crystallised from any solvent since it is practically insoluble in everything. It does not melt on heating but undergoes decomposition above 300°. (Found: Br = 35.2; $C_{33}H_{17}O_9Br_6(C_2H_3O)_7$ requires Br = 35.9%)

Hexabromo-rottlerin—$C_{33}H_{24}O_9Br_6$.

Five grams of the above brom-acetyl compound was deacetylated by heating with 150 c. c. of concentrated hydrochloric acid under reflux for about six hours. The hexabromo-rottlerin was isolated as a dark-brown powder, which could not be crystallised since it is practically insoluble in all the organic solvents. It does not melt on heating. (Found : Br=45.0 ; $C_{33}H_{24}O_9Br_6$ requires Br=45.9%)

Oxidation or Hexabromo-heptaacetyl-rottlerin with potassium permanganate.

The oxidation was carried out as in the previous instances and from the reaction product, 2,4-dibromo-benzoic acid, phthalic acid and terephthalic acid were isolated and identified.

Hexanitro-hexamethoxy-rottlerin

$$C_{33}H_{18}O_9(OCH_3)_6(NO_2)_6$$

Methoxy-rottlerin was nitrated by fuming nitric acid in the same manner as acetyl-rottlerin with formation of a hexa-nitro compound. It crystallises from acetic acid in orange-brown glistening needles which decompose on heating. The substance is moderately soluble in most of the organic solvents. (Found : N=8.6 ; $C_{33}H_{18}O_9(OCH_3)_6(NO_2)_6$ requires N=8.2%)

Oxidation of Hexanitro-hexamethoxy-rottlerin with potassium permanganate.

The oxidation was carried out as in the previous instances and from the product of the reaction three substances, namely, 2, 4-dinitro-benzoic acid, 3, 6-dinitro-phthalic acid and 2, 5-dinitro-terephthalic acid were definitely isolated and identified. No phloroglucinol derivative could be detected.

Further work in this direction is in progress.

ALUMINIUM POWDER AS A SYNTHETIC REAGENT

BY

AMARESH CHANDRA RAY AND SIKHIBHUSHAN DUTT

Since the middle of the 19th century, various metals have been used in the different processes of organic synthesis, but the metal aluminium has not received as wide applications although its salts, particularly the anhydrous chloride and to a certain extent the amalgam have been used in the well-known Friedel-Craft's synthesis. Perhaps the first important attempts to treat metallic aluminium with organic substances were those of Gladstone and Tribe (*J. Chem. Soc.*, 1876, **29,** 158; 1881, **39,** 1) who prepared aluminium alcoholates by the action of alcohols on the metal. Their work was subsequently extended and criticised by Saligman and Williams (*J. Chem. Soc.*, 1918, **113,** 159), who prepared the aluminium salts of fatty acids, alcohols and phenols by the action of purified aluminium powder on the corresponding dry substances at their respective boiling points. They also showed that the reactions are entirely inhibited by traces of moisture even when once started, and this phenomenon has been explained by them as due to the formation of a superficial layer of oxide.

In 1895, an attempt was made by Radziewanoski (*Ber.*, 1895, **28,** 1139) to use aluminium powder mixed with mercuric chloride as a condensing agent in the ordinary Friedel-Craft's reaction, but it was a failure. Later on he found (*Ber.*, 1904, **37,** 1560) that aluminium powder in benzene or xylene solution formed compounds with mercuric

chloride of the type C_6H_6. $AlCl_3$. HgCl, which gave successful results in several condensations of the type of Friedel-Craft's reaction. Subsequently this work has been extended by Ray (*J. Chem. Soc.*, 1920, **117,** 1335).

The above represents practically the whole of the literature on the reactions of aluminium powder, from which it can be easily seen that aluminium powder has hardly been used in the condensations apparently due to its inactivity, and in those few scattered examples in which use has been made of the metal, it has been either amalgamated with mercury or mixed with such substances as mercuric chloride or hydrogen chloride. Therefore the present investigation was undertaken with a view to make an exhaustive study of the metal in many of the typical reactions of organic chemistry.

It was found that ordinary aluminium powder is very inactive. Washing with caustic soda and acid, refluxing for several hours with ether, alcohol or benzene did not make much improvement. The problem was becoming almost hopeless, when incidentally it was found that aluminium powder becomes highly reactive when heated in a current of pure dry hydrogen at about 500° for a short time. This peculiar phenomenon was at first thought to be due to the formation of a metallic hydride, but since on quantitative analysis the metal thus activated is found to contain no hydrogen, it is supposed that the activation is due to the reduction of the film of sub-oxide with which the surface of ordinary metallic aluminium is always covered. The existence of such a sub-oxide has not been recorded in inorganic literature, the only oxide on record being Al_2O_3. But as it is well known that the latter oxide cannot be reduced by hydrogen, so the presence of a sub-oxide is fairly tentative as in the case of lead. Aluminium thus activated has been found to react vigorously with oxygenated and halogenated compounds in accordance with the well-known and typical

reactions of Ullmann, Friedel and Craft, Wurtz, Reformatski and others. Aluminium under such conditions also acts as a strong pyrogenetic and neutral reducing agent.

Thus it is seen that aluminium powder when properly activated by heating in a current of pure dry hydrogen behaves almost exactly like copper, silver, mercury or zinc in most of the typical organic reactions. The only notable exception with regard to the behaviour of aluminium is that it does not form an organo-metallic derivative like magnesium in Grignard's reaction under the same circumstances. Otherwise aluminium powder is a very reactive material with which a large number of organic syntheses can be achieved.

EXPERIMENTAL

Dry Distillation with Aluminium Powder.

In these series of experiments, fine commercial aluminium powder was refluxed with absolute alcohol for several hours and then very thoroughly washed with ether. The metallic powder thus purified was then carefully dried at 110°, and stored in stoppered bottles until required for use. For the purpose of dry distillation a hard glass tube about 30 inches in length was bent at about 8 inches from one end, so as to form a delivery tube to which a distilling flask was attached as a receiver. This latter was carefully cooled by cold water, ice or freezing mixtures according to the nature of the compound undergoing distillation. The longer portion of the tube was packed to about three-quarters of its length with broken pumice which had been previously coated with the prepared aluminium dust. The rest of the tube at the other end was filled with the substance intimately mixed with three times its weight of the same aluminium powder. A slow stream of pure and carefully dried hydrogen or carbon dioxide was

then passed through the tube while the latter was heated in a combustion furnace, taking care to heat the substance last of all. In this way many substances were distilled and all the various products isolated and identified. The results are summarised in tabular form.

DRY DISTILLATION WITH ALUMINIUM POWDER IN A CURRENT OF DRY HYDROGEN OR CARBON DIOXIDE.

Substance.	Temperature of distillation.	Main product of reaction and percentage of yield (in brackets).	Bye-products.
Phenol	470°	Benzene (21)	Diphenyl.
Catechol	500°—540°	Benzene (15)	Phenol, diphenyl.
Resorcinol	,,	,, (19)	,, ,,
Quinol	,,	,, (12)	,, ,,
Pyrogallol	,,	,, (12)	Catechol, phenol, diphenyl.
Phloroglucinol	,,	,, (13)	Resorcinol, phenol, diphenyl.
p-Nitrophenol	,,	Aniline (23)	Benzene, ammonia, *p*-aminophenol.
m-Nitrophenol	,,	,, (20)	Benzene, ammonia, *m*-aminophenol.
p-Nitrosophenol	,,	,, (21)	Benzene, ammonia, *p*-aminophenol.
m-Nitraniline	,,	,, (15)	Benzene, ammonia, *m*-phenylene diamine.
p-Nitrotoluene	,,	Toluene (26)	Ammonia, *p*-toluidine.
p-Nitrobenzoic acid	,,	Aniline (13)	Benzene, ammonia, carbon dioxide.
Salicylic acid	,,	Benzene (15)	Phenol, diphenyl, carbon dioxide.
Benzoic acid	,,	,, (15)	Diphenyl carbon dioxide.
Benzaldehyde	,,	Toluene (39)	*Nil*
Phthalic anhydride	Dull red heat	Phthalide (83)	*Nil*

Substance.	Temperature of distillation.	Main product of reaction and percentage of yield (in brackets).	Bye-products.
Quinone	Dull red heat	Benzene (13)	Phenol, diphenyl.
Succinimide	,,	Pyrrol (17)	*Nil*
Benzophenone	,,	Diphenylmethane (48)	*Nil*
β-Naphthol	,,	Naphthalene (35)	*Nil*
β-Naphthaquinone	,,	,, (21)	β-Naphthol
Anthraquinone	,,	Anthracene (30)	*Nil*
Phenanthraquinone	,,	Phenanthrene (35)	*Nil*
Alizarine	,,	Anthracene (37)	*Nil*
Isatin	,,	Indol (20)	Aniline
Indigo	,,	,, (12)	,,

Ullmann's Reaction with Aluminium Powder.

(*a*) *Diphenyl from Iodobenzene.*—In this and all other subsequent experiments described in this paper the aluminium powder immediately before use was heated in a stream of pure, dry hydrogen for about half an hour.

Iodobenzene (10 g.) and aluminium powder (5 g.) were heated under reflux at 250° for about three hours. A vigorous reaction took place and some iodine was deposited in the neck of the flask. The viscous reaction product was extracted with ether, filtered from the unchanged aluminium powder, decolorised with sodium thiosulphate, and allowed to evaporate, when colourless crystals, m. p. 70° were obtained. These were identified to be those of diphenyl (yield 0·43 g.).

(*b*) *Dibenzyl from Benzyl Chloride.*—A mixture of benzyl chloride (10 g.) and aluminium powder (5 g.) was heated under reflux at 200° for about an hour. A vigorous

reaction took place and the mass became yellow. On extraction with ether, filtration and slow evaporation a yellow crystalline solid was obtained which melted at 51°, and was identified to be dibenzyl (yield 4·2 g.).

(*c*) *Adipic Acid from β-Iodopropionic Acid.*—β-Iodopropionic acid (6 g.) was intimately mixed with aluminium powder (2·2 g.) and the mixture first heated at 110°—120° for one hour and then at 180°—200° for three hours. The product was cooled and extracted with boiling water. On cooling the extract, large shining colourless crystals separated out. These were filtered off and recrystallised from boiling water, when the substance melted at 148°, and was identified to be adipic acid (yield 1·4 gm.).

(*d*) *Diphenylamine from Aniline and Chlorobenzene.*—Chlorobenzene (10 g.), aniline (9 g.) and aluminium dust (5 g.) were heated at 180°—200° for about three hours. The cold reaction product was then extracted with ether, the ethereal extract filtered from unchanged aluminium powder and allowed to evaporate when a solid crystalline substance was obtained. This on recrystallisation from alcohol melted at 52°, and was identified to be diphenylamine (yield 3·5 g.).

(*e*) *Diphenylether from Phenol and Bromobenzene.*—A mixture of phenol (9 g.), bromobenzene (17 g.), aluminium powder (6 g.) and anhydrous potassium carbonate (0·5 g.) was heated at 180°—200° for about four hours. The reaction product was then distilled in steam, when an oily liquid with a fine flowery smell came over in the distillate. It was extracted with ether, the ethereal extract thoroughly washed with dilute sodium hydroxide and water, dehydrated with calcium chloride and the ether evaporated when a pale yellow liquid was obtained boiling at 252° which was identified to be diphenyl ether (yield 15 g.).

(*f*) *Hexachloroethane from Carbon Tetrachloride.*—Carbon tetrachloride (15 g.) was heated on the water-bath

under reflux with aluminium powder (7 g.) for about half an hour. A vigorous reaction took place and dense white fumes evolved which condensed in the neck of the flask to a colourless crystalline solid. The reaction product was isolated by extraction with ether and purified by recrystallisation from benzene when it was obtained in large colourless crystals with a camphor-like smell and melting at 185°. It was identified to be hexachloroethane (yield 9·3 g.).

FRIEDEL-CRAFT'S REACTION WITH ALUMINIUM POWDER.

(*a*) *Acetophenone from Acetylchloride and Benzene.*—A mixture of carefully dried acetylchloride (10 g.) and benzene (15 g.) was treated with aluminium powder (6 g.) and the whole heated on the water-bath under reflux for about three hours. Torrents of hydrogen chloride were evolved and the mixture set to a dark viscous mass. The product was then carefully treated with ice-cold dilute hydrochloric acid when the dark aluminium compound dissolved and a pale yellow oil having the characteristic odour of acetophenone separated out. It was extracted with benzene, dried with calcium chloride and fractionated when a colourless oil boiling at 202° was obtained. This was identified to be acetophenone (yield 9·5 gm.).

(*b*) *Diphenyl Methane from Benzyl Chloride and Benzene.*—A mixture of benzyl chloride and benzene was treated with aluminium powder as in the above instance and the product similarly isolated. It was a colourless oil boiling at 174°—176° and with a pronounced orange-like smell. It was identified to be diphenylmethane (yield about 38 %).

(*c*) *Triphenylmethane from Chloroform and Benzene.*—A mixture of pure dry chloroform (30 c.c.) and benzene (100 c.c.) was treated with aluminium powder (5 g.) and the whole heated on the water-bath for about one hour. A

vigorous reaction took place and a copious stream of hydrogen chloride was evolved. After the reaction was over the dark-brown aluminium compound was decomposed with ice-cold dilute hydrochloric acid and the upper benzene layer separated. This was dried and then distilled, at first on the water-bath at ordinary pressure to remove the excess of benzene, and then over a free flame under reduced pressure (8 mm.). Three fractions were obtained, namely :

(1) A pale yellow oil—3·7 gm. (identified as diphenyl methane).

(2) A colourless crystalline solid—8·6 gm. (identified to be triphenylmethane).

(3) A dark-coloured residue—2·7 gm. (which could not be identified).

(*d*) *Triphenyl Methane from Carbon Tetrachloride and Benzene.*—A mixture of carbon tetrachloride (30 g.), benzene (100 g.) and aluminium powder (7 g.) was gently heated on the water-bath under reflux, when a vigorous reaction took place and torrents of hydrochloric acid gas were evolved. In about ten minutes reaction was over and the whole mass became dark-brown in colour. The product was cooled, decomposed with ice-cold dilute hydrochloric acid, and from the benzene layer thus separated, diphenylmethane (yield 3·7 g.) and triphenyl methane (yield 11·2 g.) were isolated and identified.

(*e*) *Benzophenone from Benzoyl Chloride and Benzene.*—A mixture of benzoylchloride (15 g.) and benzene (50 g.) was treated with aluminium powder (5 g.) and the mixture heated on the sand-bath under reflux, till the evolution of hydrogen chloride had ceased (about 4 hours). The mixture was then treated with ice-cold dilute hydrochloric acid and the benzene layer separated as usual. This was washed with dilute sodium hydroxide and water, dried and fractionally distilled at ordinary pressure, when an almost colourless oil boiling at 300°—310° was obtained. This solidified in the

receiver and on recrystallisation from dilute alcohol melted at 46°, and was identified to be benzophenone (yield 3·2 gm.).

Reformatski's Reaction with Aluminium Powder.—A mixture of acetophenone (12 g.), bromacetic ester (17 g.), aluminium powder (5 g.), and dry benzene (100 c.c.) was gently warmed on the water-bath until a vigorous reaction took place. The latter was allowed to subside and then the mixture gently boiled on the sand-bath for about two hours. After cooling, ice-cold dilute hydrochloric acid was added to decompose the dark-coloured aluminium compound, the benzene layer separated, washed with dilute sodium hydroxide and water, dried and then fractionally distilled under highly reduced pressure. A colourless liquid boiling at 120°/4 mm. was obtained which was identified to be β-phenyl-methyl-hydroxy-propionic ester (yield 6·2 g.).

Neutral Reduction with Aluminium Powder.

(*a*) *Phenyl-hydroxylamine and Aniline from Nitro-benzene.*—A mixture of nitro-benzene (20 g.), ammonium chloride (6 g.), distilled water (250 c.c.) and aluminium powder (16 g.) was vigorously agitated while being cooled in a freezing mixture. A vigorous reaction took place and in about an hour the smell of nitrobenzene had completely disappeared. The solution was filtered at the pump, the residue washed with about 100 c.c. of ice-cold water, and the combined filtrate and washings saturated with salt and left standing in the freezing mixture, when the liquid became almost semi-solid with deposit of fine colourless crystals. These were identified to be those of phenyl-hydroxylamine (yield almost quantitative).

The reaction was repeated at the ordinary temperature, and after allowing the reaction mixture to stand for about 12 hours, only aniline (yield 9·2 g.) could be isolated. There was no trace of phenyl-hydroxylamine. The solution

was faintly alkaline to litmus, and the odour of ammonia could be detected.

(*b*) *Triamido-phenol from Picric Acid.*—Picric acid on similar treatment to the above, at first gave picramic acid (yield 87%) and then triamido-phenol (yield 63 %).

(*c*) *Benzhydrol from Benzophenone.*—Benzophenone was similarly treated in 75 % alcoholic solution with aluminium powder, and after about 12 hours a quantitative yield of benzhydrol was obtained in colourless crystals, m.p. 168°.

(*d*) *Aniline and Triaminobenzene from Chrysoidine.*—Chrysoidine on similar treatment gave an almost theoretical yield of a mixture of aniline and triamino-benzene (1 : 2 : 4).

"MARGOSIN"—THE ALKALOID DERIVED FROM NEEM LEAVES

BY

DHANRAJ PURI GOSWAMI AND SIKHIBHUSHAN DUTT

The Neem tree, which grows practically all over India and specially well in U. P., bears abundant quantities of long, narrow, saw-edged leaves of a dark green colour. The taste of these leaves is intensely bitter, and they have got a pronounced physiological action, particularly efficacious in malarial and other fevers and in all kinds of skin diseases. It is widely used in our country by the Kavirajes in general in various kinds of medicinal preparations. The antiseptic property of Neem leaves has also been recognised by the modern Doctors.

These interesting facts with regard to these leaves led us to investigate their chemical nature, and by working up large quantities of these leaves we have been able to isolate an interesting compound answering all the properties of an alkaloid which we have named "Margosin." In this connection we have also investigated the oil derived from the Neem seeds, and isolated several products, the constitutions of which are at present under investigation.

EXPERIMENTAL

One Kilo of fresh Neem leaves was boiled with about ten Kilos of water in a tin canister holding about twenty Kilos, for about four hours, adding small quantities of water from time to time to replace that removed by evaporation. The solution, which was of an intense yellow colour, was then filtered through cloth and again through filter paper, and the

clear solution treated with basic lead acetate. A brilliant yellow crystalline precipitate was at once thrown down, which was filtered off. Through the filtered mother liquor a current of hydrogen sulphide was passed until no more of lead sulphide came down. The precipitate was filtered off and the filtrate evaporated down to about one-tenth its original volume. A solution of tannic acid in water was then added which caused the immediate separation of a brownish white granular precipitate. This was filtered off, washed with water and then decomposed by a solution of barium hydroxide. The insoluble barium tannate was filtered off and from the filtrate the excess of barium was removed by passing a current of carbon dioxide. After removal of the barium carbonate by filtration, the mother liquor was slowly evaporated when colourless crystals of the alkaloid were deposited in minute nodules. From one Kilo of the leaves the amount of alkaloid usually obtained was about 1·5 grams.

It is a colourless crystalline substance with a very intense bitter taste resembling closely that of quinine or cinchonine. It gives all the colour reactions of the alkaloids and with platinic chloride gives an immediate yellow precipitate. It gradually decomposes on heating.

Further work in this direction is in progress.

DYES DERIVED FROM 1, 2, 3-QUINOLINE TRICARBOXYLIC ACID

BY

JAMUNA DATT TEWARI AND SIKHIBHUSHAN DUTT

Acridic acid, which is 1, 2 - quinoline dicarboxylic acid, contains two carboxyl groups in ortho position to one another, and is therefore expected to yield dyestuffs on condensation with aromatic amino, and hydroxy-compounds just in the same way as phthalic acid or quinolinic acid (Ghosh, J., 1919, *115*, 1102).

Acridic acid differs from quinolinic acid in the same way as phthalic acid differs from naphthalic acid, that is, by the presence in the latter of a fused benzene nucleus. From the point of view of the theory of colour that has been advanced by one of the present authors (Dutt, J., 1926, *129*, 1171 ; also J.I.C.S., 1927, *4*, 99) it would be interesting to prepare pyronine dyestuffs from acridic acid and directly compare the intensity of their colour with the corresponding dyes derived from quinolinic acid, since by that means the effect of the fused benzene nucleus is easily ascertained. The effect of the nitrogen atom included in a ring system on colour, which is the main object of this series of papers is also thereby seen, by comparing colours of the dyes derived from acridic acid with the corresponding dyes derived from naphthalic acid. Hence it can be easily seen that from the theoretical point of view dyes derived from acridic acid if they could be prepared would be of considerable importance.

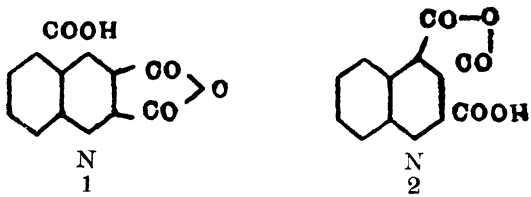
Unfortunately the only practicable method available for the preparation of acridic acid is by the oxidation of acridine by potassium permanganate. This method gives only about

10% yield of acridic acid, since in the oxidation reaction acridine is mainly transformed to pyridine-tetracarboxylic acid, that is to say, both the benzene nuclei in acridine are opened up by oxidation simultaneously, thereby considerably diminishing the yield of acridic acid. Besides this, the preparation of acridine itself in quantity is such a difficult affair, and the yield obtained is so bad, that for all intents and purposes acridic acid is practically an inaccessible material.

It was therefore thought that if some simple derivative of acridic acid could be fairly easily available, investigation could probably be carried on with that substance instead of acridic acid itself. Amongst the higher homologues of acridine, 9-methyl-acridine can be prepared in good yield by the action of acetic acid and zinc chloride on diphenylamine at about 220° according to the method described in Ber., *16*, 74 by O. Fischer Besthorn. This 9-methyl-acridine on oxidation with potassium permanganate gives an equally good yield of 1, 2, 3- quinoline-tricarboxylic acid, which is really 3-carboxy-acridic acid. The condensation of this acid with aromatic amine-, and hydroxy-compounds was therefore undertaken with the object of preparing dyestuffs which would be perfectly analogous in constitution to the corresponding dyes derived from acridic acid. Since a carboxyl in a dye molecule does not affect its colour to any appreciable extent as can be seen from the following table:

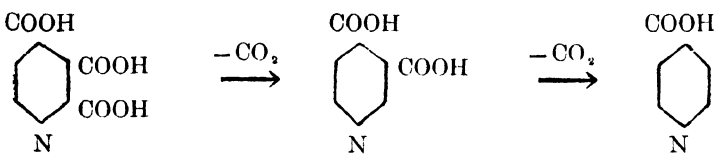
Dyestuffs.	*Absorption maxima.*
B -enzene-azo -phenol ...	... 4330
B -enzene-azo-salicylic acid ...	... 4340
B -enzene-azo-B-naphthol ...	... 4673
B -enzene-azo-B-oxy-naphthoic acid	... 4680
B -enzene-azo-pyrogallol ...	... 4430
B -enzene-azo-gallic acid ...	... 4440
B -enzene-azo-resorcinol ...	... 4470
B -enzene-azo-B-resorcylic acid ...	... 4470

it was therefore concluded that dyes derived from 3-carboxy-acridic acid would have practically the same colour as the corresponding dyes derived from acridic acid, and consequently would have the same theoretical importance. The only thing that remained to be settled was whether this 3-carboxy-acridic acid would condense with aromatic amino-, and hydroxy-compounds in Form 1 or 2.



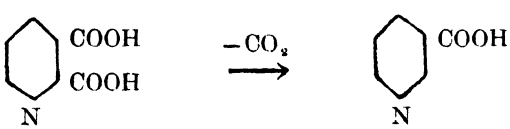
1 2

Form 1 was finally settled to be the form in which the condensations do actually occur by a study of the stability of the various pyridine carboxy-acids. Thus carbo-cinchomeronic acid on careful heating can be made to decompose by successive losses of carboxyl into cinchomeronic acid and finally into iso-nicotinic acid.



carbo-cinchomeronic acid — cinchomeronic acid — iso-nicotinic acid

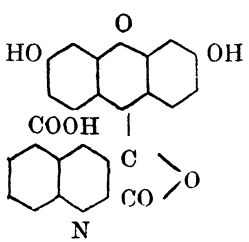
Similarly quinolinic acid on heating decomposes into nicotinic acid while cinchomeronic acid becomes iso-nicotinic acid.



quinocinic acid — nicotinic acid

Thus it is evident that the further away the carboxyl group is from the heterocyclic nitrogen atom the less reactive and consequently the more stable it is. Hence, since in the condensation products of 3-carboxy-acridic acid with aromatic amino-, and hydroxy-compounds one carboxyl is found to remain in intact, it must be the 3-carboxyl which remains so, since it is the least reactive of the three carboxyl groups present in the above acid. Therefore it follows that in all the condensations products of 3-carboxy-acridic acid, it must have reacted in Form 1.

3-carboxy-acridic acid condenses with the aromatic amine and hydroxy compounds with remarkable ease, even without the use of any condensing agents, though of course the use of small quantities of strong sulphuric acid or tin tetrachloride is advisable in order to get increased yields of the resulting dyestuffs. The structure of the resorcinol compound is given below :—



The structures of other compounds described are quite analogous to this. The following aromatic amine-, and hydroxy-compounds have been condensed with 3-carboxy-acridic acid and the resultant dyestuffs isolated :—phenol, resorcinol, phluroglucinol, hydroxy-quinol, metadiethyl amido phenol, and metaphenylenediamine. The absorption spectra of these compounds will be given in a comparative tabular form along with the last paper of the series. Since these dyestuffs contain a quinoline nucleus, it is expected that they might have photosensitising properties also. Further investigation in that direction is now in progress.

EXPERIMENTAL

The condensations of 3-carboxy-acridic acid with aromatic amine-, and hydroxy-compounds have been effected in the same manner as in the cases of B-phenyl-pyridine dicarboxylic acid (Tewari and Dutt, J.I.C.S., 1926, *3*, 161) and imidazole dicarboxylic acid (Tewari and Dutt, J.I.C.S., 1927, *4*, 201). The results are summarised in the tabular form :—

Dyes derived from 1, 2, 3-Quinoline-tricarboxylic Acid.

Name.	Appearance.	M. P.	Colour in alkali.	Colour of fluorescence.	Analysis (calc. per cent in brackets).
Phenol-3 Carboxy-acridein.	Pale-yellow needles.	Above 280°	Pink.	. .	C=69·3 (69·7) H= 3·4 (3·04)
Resorcinol ...	Yellowish-brown needles.	194°	Yellow.	Yellow green.	C=66·9 (67·4) H= 3·2 (3·04)
Phlorogiucinol ...	Orange needles.	Above 280°	Orange-red.	..	C=63·02 (62·7) H= 2·4 (2·8)
Hydroxyquinol ...	Brown needles.	,, ,,	Deep pink	...	C=63·1 (62·7) H= 2·7 (2·8)
M-diethylamido-phenol.	Pink needles.	220°	Violet-red (in acids).	Brown.	N= 7·4 (7·9)
M-phenylenedia-mine.	Dark-brown.	Above 280°	Yellow-brown.	Green.	N=12·9 (13·2)

SECTION II

MATHEMATICS

ON THE COEFFICIENTS IN THE EXPANSION OF THE JACOBIAN ELLIPTIC FUNCTIONS IN POWERS OF THE VARIABLE

BY

PIARE MOHAN.

In the year 1839 Christian Gudermann, to whom the abbreviations Snu, Cnu, Dnu, are due, obtained the expansions of these functions in powers of u giving the first six terms in the case of Snu and the first seven terms in the case of Cnu and Dnu. Since then every writer[1] of any important book on the subject of Elliptic Functions has only in part or wholly reproduced the result of Gudermann and none[2] of them has made any attempt to extend his results.

The present paper is the outcome of my efforts to obtain the general terms in the afore-mentioned expansions but my efforts have not as yet completely succeeded and I have been able to extend the result given by Gudermann to some five terms more. If k be so small that k^4 and higher powers of k can be neglected then the general term has also been found out.

My thanks are due to Dr. Ganesh Prasad for his suggestion and encouragement.

Legendre's Elliptic Integral of the first kind is

$$u = \int_0^x \frac{dx}{\sqrt{(1-x^2)\,(1-k^2x^2)}}$$

[1] H. Hancock: "Lectures on the Theory of Elliptic Functions," Vol. I, 1910.

Robert Fricke: "Die Elliptischen Funcktionen und Ihre Anwendungen," 1916.

P. Appell and E. Lacour: "Principes De La Theorie Des Fonctions Elliptiques et Applications," 1897.

[2] Since the publication of this paper I have met with a paper in the Bulletin of the Calcutta Math. Society which gives a part of the result arrived at by myself but the author has not been able to deduce any noteworthy conclusions.

Put $x = \text{Sin}\phi$; and then we get,

$$u = \int_0^{\phi} \frac{d\phi}{\sqrt{1-k^2 \text{ Sin}^2 \phi}} \quad \ldots \quad (\text{I})$$

Inverting the Integral (I) we get

$\phi = \text{amu.}$

$\therefore x = \text{Sin amu};$

$\sqrt{1-x^2} = \text{Cos amu};$

$\sqrt{1-k^2x^2} = \triangle \text{ amu.}$

Adopting the notation of Gudermann we get the three fundamental Elliptic functions

$x = \text{Snu}$ ... ... (*i*)

$\sqrt{1-x^2} = \text{Cnu}$ ... . . . (*ii*)

$\sqrt{1-k^2x^2} = \text{Dnu}$ ... . (*iii*)

From (I) we get,

$\frac{d\phi}{du} = \triangle \text{ amu} = \text{dnu.}$

We also note that

$\frac{d \text{ Snu}}{du} = \text{Cnu dnu}$ . ... (*a*)

$\frac{d \text{ Cnu}}{du} = -\text{ Snu dnu}$ ... ... (*b*)

$\frac{d \text{ dnu}}{du} = -k^2 \text{Snu Cnu}$ ... ... (*c*)

Also from (i), (ii) and (iii) we notice the relations,

$\text{Snu}^2 + \text{Cnu}^2 = 1$ ... ... (*d*)

$\text{Knu}^2 + \text{Dnu}^2 = 1$ ... ... (*e*)

Continually differentiating (*a*) and making use of (*b*), (*c*), (*d*), (*e*), we can easily deduce that $\frac{d^{2\nu}\text{Snu}}{\text{du}^{2\nu}}$ can be expressed as an odd function of Snu of degree $2\nu+1$, *i.e.*,

$$\frac{d^{2\nu}\text{Snu}}{du^{2\nu}} = \left(\alpha_0^{(\nu)} \text{Snu} + \alpha_1 {}^{(\nu)}\text{Snu}^3 + \alpha_\mu^{(\nu)} \text{Snu}^{2\mu+1} \ldots \alpha_\nu^{(\nu)} \text{Snu}^{2\nu+1}\right) \ldots (\text{II})$$

The αs being independent of u and dependent only on k^2.

Differentiating it twice we get after reduction and substitution,

$$\frac{d^{2\nu+2}}{du^{2\nu+2}} Snu = \left\{ 1 - (1+k^2) S^2 nu + k^2 S^4 nu \right\} \times \left\{ 3.2.\, a_1^{(\nu)} Snu + \ldots + (2\gamma+1)(2\gamma)\, a_\nu^{(\nu)} Snu^{2\nu-1} \right\} \ldots \text{(III)}$$

In (II), putting $\nu + 1$ for ν we get,

$$\frac{d^{2\nu+2}}{du^{2\nu+2}} Snu = \left\{ a_0^{(\nu+1)} Snu + a_1^{(\nu+1)} Sn^3 u + \ldots \right.$$
$$\left. \ldots\ a_\mu^{(\nu+1)} Sn^{2\mu+1} + \ldots\ldots a_{\nu+1}^{(\nu+1)} Sn^{2\nu+3} \right\} \ldots \text{(IV)}$$

The equations (III) and (IV) represent the same quantities, *i.e.*, $\frac{d^{2\nu+2}}{du^{2\nu+2}} Snu$ in powers of Snu, and are hence identical. Equating the coefficients of $Snu^{2\mu+1}$ in these we get at once the recurring formula

$$a_\mu^{(\nu+1)} = (2\mu+3)(2\mu+2)\, a_{\mu+1}^{(\nu)} - (1+k^2)(2\mu+1)^2 \times a_\mu^{(\nu)} + (2\mu-1)\, k^2.2\mu\ a_{\mu-1}^{(\nu)} \ldots \quad \ldots \quad \ldots \text{(A)}$$

with the condition that for all values of ν

$$a_{\nu+1}^{(\nu)} = a_{\nu+2}^{(\nu)} = 0; \quad \text{also } a_{\nu+2}^{(\nu+1)} = 0; \ a_0^0 = 1.$$

By giving successive values to μ and γ in (A) we get the following table:

$$a_1^{(1)} = 2k^2,$$
$$a_1^{(2)} = -20k^2 - 20k^4,$$
$$a^{(3)} = 182k^2 + 868k^4 + 182k^6,$$

$$a_0^{(1)} = -1-k^2,$$

$$a_0^{(2)} = 1+14k^2+k^4,$$

$$a_0^{(3)} = -1-135k^2-135k^4-k^6,$$

$$a_2^{(2)} = 24k^4,$$

$$a_2^{(3)} = -840k^4-840k^6,$$

$$a_0^{(4)} = 1+1228k^2+5478k^4+1228k^6+k^8,$$

$$a_2^{(4)} = 23184k^4+82656k^6+23184k^8,$$

$$a_3^{(3)} = 720k^6,$$

$$a_1^{(4)} = -1640k^2-26520k^4-26520k^6-1640k^8,$$

$$a_0^{(5)} = -(1+11069k^2+165826k^4+165826k^6+11069k^8+k^{10}),$$

$$a_3^{(4)} = -60480k^6-60480k^8,$$

$$a_4^{(4)} = 40320k^8 = \underline{|8}\ k^8,$$

$$a_1^{(5)} = 14762k^2+719576k^4+2141436k^6+719576k^8+14762k^{10},$$

$$a_2^{(5)} = -(599280k^4+5504400k^6+5504400k^8+599280k^{10}),$$

$$a_3^{(5)} = 3659040k^6+11309760k^8+3659040k^{10},$$

$$a_4^{(5)} = -6652800k^8(1+k^2),$$

$$a_5^{(5)} = -3628800k^{10} = \underline{|10}\ k^{10}.$$

$$\therefore\ a_n^{(n)} = \underline{|2n}\ k^{2n}.$$

$$a_0^{(6)} = (1+99642k^2+4494351k^4+131180268k^6+4494351k^8+99642k^{10}+k^{12})$$

$$a_1^{(6)} = -k^2(132860+18616780k^2+136168760k^4+136168760k^6+18616780k^8+132860k^{10})$$

$$a_2^{(6)} = k^4(15159144+314906592k^2+775927152k^4+314906592k^6+15159144k^8)$$

$$a_3^{(6)} = -k^6(197271360+1377604800k^2+1377604800k^4+197271360k^6)$$

$$a_4^{(6)}=k^8(743783040+211026810k^2+743783040k^4)$$

$$\begin{aligned}a_0^{(7)}=&-(1+896803k^2+116294673k^4+834687179k^6\\&+834687179k^8+116294673k^{10}+896803k^2\\&+k^{14})\end{aligned}$$

$$\begin{aligned}a_1^{(7)}=&\ k^2(1195742+472128924k^2+7700190402k^4\\&+17995941256k^6+77001190402k^8\\&+472128924k^{10}+1195742k^2)\end{aligned}$$

$$\begin{aligned}a_2^{(7)}=&-k^4(380572920+16760441880k^2+86764270320k^4\\&+86764270320k^6+16760441880k^8\\&+380572920k^{10})\end{aligned}$$

$$\begin{aligned}a_3^{(7)}=&k^6(10121070960+140168508480k^2\\&+310222392480k^4+140168508480k^6\\&+10121070960k^8)\end{aligned}$$

$$\begin{aligned}a_0^{(8)}=&\ (1+8071256k^2+2949965020k^4+47152124264k^6\\&+109645021894k^8+47152124264k^{10}\\&+2949965020k^{12}+8071256k^{14}+k^{16})\end{aligned}$$

$$\begin{aligned}a_1^{(8)}=&-k^2\{10761680(1+k^{14})+11873174000(k^2+k^{12})\\&+408992300880(k^4+k^{10})+1968219965680\\&(k^6+k^8)\ \}\end{aligned}$$

$$\begin{aligned}a_2^{(8)}=&\ k^4\{\ 9528671904(1+k^{12})+859275897408k^2(1+k^8)\\&+8567597445984k^4(1+k^4)\\&+175835052952328k^6\}\end{aligned}$$

$$\begin{aligned}a_0^{(9)}=&-\{(1+k^{18})+72641337k^2(1+k^{14})+74197080276k^4\\&(1+k^{10})+2504055894564k^6(1+k^6)\\&+119661169402388k^8(1+k^2)\ \}\end{aligned}$$

$$\begin{aligned}a_1^{(9)}=&k^2\{\ 96855122(1+k^{16})+297545001712k^2(1+k^{12})\\&+20979207152120k^4(1+k^8)\\&+1928411635672486k^6(1+k^4)\\&+387317355330668k^8\ \}\end{aligned}$$

$$\begin{aligned}a_0^{(10)}=&\{(1+k^{20})+653772070k^2(1+k^{16})+1859539731885k^4\\&(1+k^{12})+128453495887560k^6(1+k^8)\\&+11715171542382908k^8(1+k^4)\\&+2347836365864484k^{10}\end{aligned}$$

Since *Snu* is an odd function, assuming the possibility of expanding *Snu* in odd powers of w we get,

$$Snu = u - A_1\frac{u^3}{3!} + A_2\frac{u^5}{5!} - A_3\frac{u^7}{7!} + \ldots\ldots\ldots\ldots$$

$$\ldots + A^3\frac{u^{17}}{17!} + \ldots + (-1)^n A_n \frac{u^{2n+1}}{(2n+1)!} + \ldots\ldots\ldots$$

$$A_n = \left(\frac{a^{2n+1}\, Snu}{du^{2n+1}}\right)_{u=0} \quad ; i.e., u \text{ is to be put zero after the series has been differentiated } (2n+1) \text{ times}$$

$$\therefore \quad A_\nu = a_0^{(\nu)}.$$

Hence
$$A_1 = 1+k^2,$$
$$A_2 = 1+14k^2 + k^4,$$
$$A_3 = 1+135\,k^2 + 135\,k^4+k^6,$$
$$A_4 = 1+1228\,k^2 + 5478\,k^4+1228\,k^6 + k^8,$$
$$A_5 = 1+11069k^2 +165826k^4 +165826k^6 + 11069k^8 + k^{10},$$
$$A_6 = \{1+k^{12}+99642k^2(1+k^8)+4494351k^4(1+k^4) + 13180268k^6\},$$
$$A_7 = \{1+k^{14}+896803k^2(1+k^{10})+116294673k^4(1+k^6) + 834687179k^6(1+k^2)\}$$
$$A_8 = \{1+k^{16}+8071256k^2(1+k^{12})+2949965020k^4 (1+k^8)+47152124264k^6(1+k^4) + 109645021894k^8\}$$
$$A_9 = \{1+k^{18}+72641337k^2(1+k^{14})+74197080276k^4 (1+k^{10})+2504055894564k^6(1+k^6) + 11966116940238k^8(1+k^2)\}$$
$$A_{10} = \{1+k^{20}+653772070(1+k^{16})+1859539731885k^4 (1+k^{12})+128453495887560k^6(1+k^8) + 1171517154238290k^8(1+k^4) + 2347836365864484k^{10}\}.$$

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Generally,

$$A_{2n} = 1+l_1^{(2n)}k^2+l_2^{(2n)}k^4+\ldots+l_n^{(2n)}k^{2n}+l_{n-1}^{(2n)}k^{2n-2}+\ldots+l_2^{(2n)}k^{4n-4}+l_1^{(2n)}k^{4n-2}+k^{4n} \quad \ldots\ldots\ldots\ldots (\alpha)$$

and
$$A_{2n+1} = 1+l_1^{(2n+1)}k^2+l_2^{(2n+1)}k^4+\ldots\ldots\ldots\ldots + l_n^{(2n+1)}k^{2n}+l_n^{(2n-1)}k^{2n-2}+\ldots+l_2^{(2n+1)}k^{4n-4}+l_1^{(2n+1)}k^{4n-2}+k^{4n}+k^{4n-2} \quad \ldots\ldots\ldots\ldots (\beta)$$

From the above we can clearly infer that A_m is a polynomial and of degree m in (k^2) and that it has either of the two forms (α) or (β) according as m is of the form $2n$ or $2n+1$, respectively. Obviously the coefficients of the powers of k are integral and the coefficients in A_m which are equally removed from the middle term of the polynomial are equal as in the expansion of the binomial $(1+x)^n$ in powers of x.

It was the aim of this paper to find the value of the l s in A_{2n} and A_{2n+1} directly in terms of n since their evaluation by the recurrence formulæ for given values of n involves a tedious and tiresome process; only one term, that is, the coefficient of k^2 in A_m has been as yet found out as follows :—

Let $S = 1+14+135+1228+11069+ \ldots +t_n$

$S = 0+1+14+135+1228\ldots+ \ldots\ldots +t_{n-1}+t_n$

Subtracting the two we get,

$0=1+13+121+1093+9841+\ldots+\left(t_n - t_{n-1}\right)-t_n$

Again $0=0+1+13+121+1093+ \ldots\ldots\ldots + \left(t_n - t_{n-1}\right) - t_n$

Subtracting the two we get,

$0 = 1+12+108+972+8748+\ldots$ n terms

$+\left(-t_n + t_{n-1}\right)$

Thus $t_n = t_{n-1} + 1 + \frac{3}{2}\left(9^{n-1} - 1\right)$

Reducing we get

$$t_n = \frac{3\,(9^n - 1) - 8\,n}{16}.$$

Hence we have,

$$l_1^{\lambda} = \frac{3\,(9^{\lambda} - 1) - 8\lambda}{16}; \quad (\lambda = 1, 2, 3, \ldots n, \ldots \text{etc.}).$$

Again differentiating (b) successively we can express $\frac{d^{2\nu} Cnu}{du^{2\nu}}$ as a polynomial of degree $2\nu+1$ in odd powers of Cnu

$$\frac{d^{2\nu} Cnu}{du^{2\nu}} = \left(B_0^{(\nu)} Cnu + B_1^{(\nu)} Cnu^3 + B_2^{(\nu)} Cnu^5 + \ldots\ldots + B_{\nu}^{(\nu)} Cnu^{2\nu+1}\right) \quad \ldots\ldots\ldots\ldots \quad (V)$$

Differentiating it twice and using the relations (*a*), (*b*), (*c*), (*d*), (*e*), we get an expression for $\frac{d^{2\nu+2}Cnu}{du^{2\nu+2}}$ in Cnu. Also putting $\nu+1$ for ν in (V) we get another expression for $\frac{d^{2\nu+2}Cnu}{du^{2\nu+2}}$ in Cnu. Equating the coefficient of $Cn^{2\mu+1}u$ in these two expressions we get the recurrence formulæ,

$$B_{\mu}^{(\nu+1)} = -(2\mu-1)2\mu k^2 B_{\mu-1}^{(\nu)} + (2\mu+1)^2(2k^2-1)B_{\mu}^{(\nu)} + (2\mu+2)(2\mu+3)(1-k^2)B_{\mu+1}^{(\nu)}.$$

Giving successive values to μ and ν we get, observing that $b_{\mu}^{(\nu)}=0$ if $\mu > \nu$ or < 0.

$B_0^{(1)} = -1 + 2k^2,$

$B_1^{(1)} = -2k^2,$

$B_0^{(2)} = 1 - 16k^2 + 16k^4,$

$B_1^{(2)} = 20k^2 - 40k^4,$

$B_2^{(3)} = 24k^4,$

$B_0^{(3)} = -1 + 138k^2 - 408k^4 + 272k^6,$

$B_1^{(3)} = -182k^2 + 1232k^4 - 1232k^6,$

$B_2^{(3)} = -840k^4 + 1680k^6,$

$B_3^{(3)} = -720k^6,$

$B_0^{(4)} = 1 - 1232k^2 + 9168k^4 - 15872k^6 + 7936k^8$

$B_1^{(4)} = 1640k^2 - 31440k^4 + 84480k^6 - 56320k^8$

$B_2^{(4)} = 23184k^4 - 129024k^6 + 129024k^8$

$B_3^{(4)} = k^6(60480 - 120960k^2)$

$B_4^{(4)} = 40320k^8$

$$B_0^{(5)} = -1+11074k^2-210112k^4+729728k^6-884480k^8+353792k^{10}$$

$$B_1^{(5)} = -k^2(14762-778624k^2+4388736k^4-7220224k^6+3610112k^8)$$

$$B_2^{(5)} = -k^4(599280-7302240k^2+18311040k^4-12207360k^6)$$

$$B_3^{(5)} = -k^6\{3659040-18627840(k^2+k^4)\}$$

$$B_4^{(5)} = -k^8(6652800-13305600k^2)$$

$$B_5^{(5)} = -3628800k^{10}$$

$$B_0^{(6)} = 1-99648k^2+4992576k^4-32154112k^6+71997696k^8 -67104768k^{10}+22368256k^{12}$$

$$B_1^{(6)} = 132860k^2-19281080k^4+211964480k^6-657704320k^8 +774592000k^{10}-309836800k^{12}$$

$$B_2^{(6)} = k^4(15159144-375543168k^2+1811601792k^4-2872117248k^6 +1436058624k^8)$$

$$B_3^{(6)} = 197271360k^6-1969418880k^8+4724628480k^{10} -3149752320k^{12}$$

$$B_4^{(6)} = 743783040k^8-3597834240k^{10}+3597834240k^{12}$$

$$B_5^{(6)} = 1037836800k^{10}-2075673600k^{12}$$

$$B_6^{(6)} = 479001600k^{12}$$

$$B_0^{(7)} = -1+896810k^2-121675512k^4+1429612624k^6 -5354318720k^8+8804878080k^{10}-6663150592k^{12} +1903757312k^{14}$$

$$B_1^{(7)} = -1195742k^2+479303376k^4-10078771152k^6 +53541906944k^8-112628381952k^{10}+103028914176k^{12} -34342971392k^{14}$$

$$B_2^{(7)} = -380572920k^4+18663306480k^6-157611767040k^8 +451425461760k^{10}-519526425600k^{12}+207810570240k^{14}$$

$$B_3^{(7)} = -10121070960k^6+180652792320k^8-791454343680k^{10} +1221603102720k^{12}-610801551360k^{14}$$

$$B_4^{(7)} = -71293622400k^8+636366631200k^{10}-1481339059200k^{12} +987559372800k^{14}$$

$$B_5^{(7)} = -192518726400k^{10} + 900842342400k^{12} - 900842342404k^{14}$$

$$B_6^{(7)} = -217945728000k^{12} + 435891456000k^{14}$$

$$B_7^{(7)} = -87178291200k^{14}$$

$$B_0^{(8)} = 1 - 8071264k^2 + 300646384 0k^4 - 65021410816k^6 + 389937612544k^8 - 1016535248896k^{10} + 1318216683520k^{12} - 839461371904k^{14} + 209865342976k^{16}$$

$$B_1^{(8)} = 10761680k^2 - 1194850 5760k^4 + 480457340160k^6 - 4191655738880k^8 + 141688629760 00k^{10} - 22391218606080k^{12} + 16723673415680k^{14} - 4778192404480k^{16}$$

$$B_2^{(8)} = 9528671904k^4 - 916447928832k^6 + 13006907011584k^8 - 606372274913 28k^{10} + 121459387060224k^{12} - 109368927977472k^{14} + 364563093258 24k^{16}$$

$$B_3^{(8)} = 507349664640k^6 - 155368917849 60k^8 + 112165149358080k^{10} - 303438672875520k^{12} + 342992859955200k^{14} - 137197143982080k^{16}$$

$$B_4^{(8)} = 6341563388160k^8 - 94388904529920k^{10} + 387671067463680k^{12} - 586564325867520k^{14} + 293282162933760k^{16}$$

$$B_5^{(8)} = 29711191910400k^{10} - 246864012595200k^{12} + 562324886323200k^{14} - 374883257548800k^{16}$$

$$B_6^{(8)} = 62245299916800k^{12} - 284549942476800k^{14} + 284549942476800k^{16}$$

$$B_7^{(8)} = 59281238016000k^{14} - 118562476032000k^{16}$$

$$B_8^{(8)} = 20922789888000k^{16}$$

$$B_0^{(9)} = -1 + 72641346k^2 - 74778211008k^4 + 3025469414016k^6 - 285526589084 16k^8 + 111959522763264k^{10} - 222711776673792k^{12} + 238165246869504k^{14} - 130899983007744k^{16} + 29088885112832k^{18}$$

$$B_1^{(9)} = -96855122k^2 + 2983159842688k^4 - 23064734107520k^6 + 324970275402752k^8 - 16766321353671 68k^{10} + 4100525862551552k^{12} - 5172757729771520k^{14} + 3262213521932288k^{16} - 8155533804830 72k^{18}$$

$$B_2^{(9)} = -238345937760k^4 + 44839699800000k^6$$
$$-1050618700696320k^8 + 7580061634736640k^{10}$$
$$-23693732940595200k^{12} + 36326011554611200k^{14}$$
$$-26748518378373120k^{16} + 7642433822392320k^{18}$$

$$B_3^{(9)} = -25145993724480k^6 + 1295113966410240k^8$$
$$-14661508613921280k^{10} + 62388114416271360k^{12}$$
$$-120332370011258880k^{14} + 106965975363747840k^{16}$$
$$-35655325121249280k^{18}$$

$$B_4^{(9)} = -542078215660800k^8 + 12811131585907200k^{10}$$
$$-83396879858073600k^{12} + 216317767886438400k^{14}$$
$$-241079771971584000k^{16} + 96431908788633600k^{18}$$

$$B_5^{(9)} = -4165794926092800k^{10} + 55265922161049600k^{12}$$
$$-216772856178278400k^{14} + 323013868034457600k^{16}$$
$$-161506934017228800k^{18}$$

$$B_6^{(9)} = -14441333018112000k^{12} + 114162961296384000k^{14}$$
$$-255840885780480000k^{16} + 170560590520320000k^{18}$$

$$B_7^{(9)} = -24666923138457600k^{14} + 110832202594713600k^{16}$$
$$-110832202594713600k^{18}$$

$$B_8^{(9)} = -20274183401472000k^{16} + 4054366802944000k^{18}$$

$$B_9^{(9)} = -6402373705728000k^{18}$$

. . . . . .

Here again assuming the possibility of expanding Cnu in powers of u we can write since Cnu is an even function,

$$Cnu = 1 - B_1 \frac{u^2}{2!} + B_2 \frac{u^4}{4!} - B_3 \frac{u^6}{6!} + \ldots + (-1)^n \frac{u^{2n}}{2n!} + \ldots$$

$B_n = \left(\frac{d^{2n}\, cnu}{du^{2n}}\right)_{u=0}$; the value of u to be substituted after the differentiation has been performed.

Hence $B_\nu = B_0^{(\nu)} + B_1^{(\nu)} + B_2^{(\nu)} + \ldots B_\nu^{(\nu)}$;

working out the coefficients at some length we get,

$B_1 = 1,$

$B_2 = 1+4k^2 = 1+(2k)^2,$

$B_3 = 1+44k^2+16k^4 = 1+11.(2k)^2+(2k)^4,$

$B_4 = 1+408k^2+64k^5 = 1+102(2k)^2+57(2k)^4+(2k)^6,$

$B_5 = 1+922(2k)^2+1923(2k)^4+247(2k)^6+(2k)^8,$

$B_6 = 1+33212k^2+870640k^4+1538560k^6+259328k^8+1024k^{10}$

$B_7 = 1+1298932k^2+22945056k^4+106923008k^6+65008896k^8$
$+4180992k^{10}-4096k^{12}$

$B_8 = 1+2690416k^2+586629984k^4+6337665152k^6$
$+9860488448k^8+2536974336k^{10}+67047424k^{12}$
$+16384k^{14}$

$B_9 = 1+24213776k^2+14804306080k^4+34558617984k^6$
$+11653334525 44k^8+782931974154k^{10}+95153582080k^{12}$
$-1073463296k^{14}-65536k^{16}$

Generally,

$$F(k) = B_{n+1} = 1+t_1^{n+1}(2k)^2+t_2^{n+1}(2k)^4+\ldots$$
$$t_{n-1}^{(n+1)}(2k)^{2n-2}+(2k)^{2n} \quad \ldots \text{ (VI)}$$

Here B_{n+1} is a polynomial in $(2k)^2$ and is of degree n in $(2k)^2$, the coefficients of k being integral. The values of $t_1^{(n+1)}$ and $t_{n-1}^{(n+1)}$ in terms of n has been found as follows:—

To find $t_1^{(n+1)}$:—

Let $S = 1+11+102+922+8303+\ldots+t'_n$

$S = 0+1+11+102+922+\ldots+t'_{n-1}+t'_n.$

Subtracting

$0 = 1+10+99+820+7381+\ldots+(t'_n-t'_{n-1})-t'_n$

Again $0 = 0+1+10+91+820+\ldots\ldots\ldots+(t'_n-t'_{n-1})-t'_n$

Subtracting once more we get

$0 = 1+9+81+729+\ldots n$ terms $+(-t'_n+t'_{n-1}).$

$\therefore\ t'_n = t'_{n-1}+\frac{9^n-1}{8}.$

Reducing and simplifying we get

$$t'_n = \frac{9\,(9^n-1)-8n}{8^2}$$

Hence $t_1^{\lambda+1} = \frac{9(9\lambda-1)-8\lambda}{8^2}$; $(\lambda = 1, 2 \ldots n, \ldots \text{etc.})$.

Proceeding exactly as above we get say t''_n

$$t''_n = t''_{n-1} + 3.4^{n-1} - 2$$

Reducing we get

$$t''_n = 4^n - 2n - 1.$$

Hence $t_{n-1}^{(n+1)} = (4^n - 2n - 1)$; $n = 1, 2, \ldots$.

Differentiating (c) successively and making use of (a), (b), (d), (e), we can express $\frac{d^{2\nu} dnu}{du^{2\nu}}$ as a polynomial in odd powers of dnu of degree $2\nu + 1$.

$$\frac{d^{2\nu} dnu}{du^{2\nu}} = \left(C_0^{(\nu)} dnu + C_1^{(\nu)} d^3 nu + \ldots\ldots C_\nu^{(\nu)}\, dn^{3\nu+1} u \right)$$

As in the previous cases of Sn and Cn differentiating this expression twice we get $\frac{d^{2\nu+2} dnu}{du^{2\nu}}$ expressed as a polynomial in dnu and writing $(\nu + 1)$ for ν we shall get another polynomial for the aforesaid differential coefficient. From these two identical polynomials we get the recurrence formula by comparing the coefficient of $dn^{2\mu+1} u$, $\mu < \nu$ but > 0.

$$C_\mu^{(\nu+1)} = -(2\mu-1)2\mu\, C_{\mu-1}^{(\nu)} + (2\mu+1)^2 (2-k^2)\, C_\mu^{(\nu)} - (2\mu+2)\,(2\mu+3)\,(1-k^2)\, C_{\mu+1}^{(\nu)}$$

With the condition that $C_\mu^{(\nu)} = 0$ if $\mu > \nu$

By giving successive values to μ and ν we get,

$C_0^{(1)} = 2 - k^2$,

$C_1^{(1)} = -2$,

$C_0^{(2)} = 16 - 16\,k^2 + k^4$,

$C_1^{(2)} = -40+20k^2,$

$C_2^2 = 24,$

$C_0^3 = 272-408\ k^2+138\ k^4-k^6,$

$C_1^{(3)} = -1232+1232\ k^2-182\ k^4,$

$C_2^{(3)} = 1680-840\ k^2,$

$C_3^3 = -720,$

. . . . . .

Now Dnu is an even function of u and so assuming the possibility of expanding it in even powers of u we have

$$Dn\ u = 1 - C_1 \frac{u^2}{2!} + C_2 \frac{u^4}{4!} - C_3 \frac{u^6}{6!} + \ldots + (-1)^n C_n \frac{u^{2n}}{2n!} + \ldots$$

$$C_n = \left(\frac{d^{2n}}{du^{2n}} \frac{dnu}{}\right)_{u=0}$$

$$C_\nu = C_0^{(\nu)} + C_1^{(\nu)} + C_2^{(\nu)} + \ldots C_\nu^{(\nu)}$$

$C_1 = k^2,$

$C_2 = 4k^2+k^4,$

$C_3 = 16\ k^2 + 44\ k^4 + k^6,$

$C_4 = 64\ k^2 + 912\ k_4 + 408\ k^6 + k^8, \ldots .$

To find the general expression for C_n we observe that it is a polynomial in k^2 with the constant term being zero and can be written as follows :—

$$C_n = k^{2n} \left\{ \left(\frac{2}{k}\right)^{2n-2} + q_1^{(n)} \left(\frac{2}{k}\right)^{2n-4} + \cdots + 1 \right\}.$$

Comparing these values of C with those of B's we notice that if in C_{n+1} we put $1/k$ for k and multiply it by k^{2n+2} we shall at once get C_n.

Hence $Cn = k^{2n+2}\ F\ (1/k)^{2n+2}$ from (VI)

where $F\ (k) = B_{n+1}$.

I have endeavoured to put the matter in such a way that people not familiar with the subject might be able to follow it.

ON AN APPLICATION OF MELLIN'S FORMULA

BY

P. L. SRIVASTAVA

The object of this paper is to apply a well-known formula of Mellin to the study of certain Dirichlet's series. I am indebted to Prof. G. H. Hardy for assistance and advice.

If $g>0$, and $|arg.\ (x)|<\frac{\pi}{2}$, then Mellin's formula* is

$$e^{-x}=\frac{1}{2\pi i}\int_{g-i\infty}^{g+i\infty}\Gamma(z)\,x^{-z}\,dz. \tag{1}$$

It seems worth while to briefly indicate here how to establish this important formula. Putting $x=re^{i\theta}$, $z=g+it$, and observing that

$$|\Gamma(g+it)|=e^{-\frac{\pi}{2}|t|}\,|t|^{(g-\frac{1}{2})}(\sqrt{2\pi}+\epsilon), \text{ where } \epsilon\to 0, \tag{2}$$

as $|t|\to\infty$, we at once see that the right-side of (1) converges uniformly inside the angle $|\theta|<\frac{\pi}{2}$. Now, to show that the right-side $=e^{-x}$, when $|\theta|<\frac{\pi}{2}$, it is sufficient to know that the equality exists for at least real and positive values of x. Now integrate the function $(z)x^{-z}$ over the infinite rectangle whose corners are $g\pm i\infty$, $-n-\frac{1}{2}\pm i\infty$. Then, by Cauchy's Theorem, we have

$$\frac{1}{2\pi i}\int_{g-i\infty}^{g+i\infty}\Gamma(z)\,x^{-z}\,dz=\frac{1}{2\pi i}\int_{-n-\frac{1}{2}-i\infty}^{-n-\frac{1}{2}+i\infty}\Gamma(z)x^{-z}\,dz+\text{the sum} \tag{3}$$

* See, *e.g.*, Mellin, *Mathematische Annalen*, Vol. 68.

of residues of $\Gamma(z)x^{-z}$ at the poles $0, -1, -2, \ldots -n$; the contributions of the sides parallel to the real axis vanishing by virtue of (2).

Let us denote the integral on the right-side of (3) by $J(x; -n-\frac{1}{2})$, and put $z = -n-\frac{1}{2}+it$. Then

$$J(x; -n-\tfrac{1}{2}) = \frac{x^{n+\frac{1}{2}}}{2\pi}\int_{-\infty}^{\infty} \frac{\Gamma(\frac{1}{2}+it)\, x^{-it}\, dt}{(\frac{1}{2}+it-1)(\frac{1}{2}+it-2)\ldots(\frac{1}{2}+it-n-1)}.$$

Therefore $$|J(x; -n-\tfrac{1}{2})| \leq \frac{x^{n+\frac{1}{2}}}{2\pi \cdot \frac{1}{2}\cdot\frac{3}{2}\cdot\frac{5}{2}\cdot\ldots(n+\frac{1}{2})} \int_{-\infty}^{\infty} |\Gamma(\tfrac{1}{2}+it)|\, dt,$$

$$= O\left(\frac{x^n}{\Gamma(n+\frac{3}{2})}\right) \to 0, \text{ as } n \to \infty,$$

x being bounded. It follows, therefore, from (3) that

$$\frac{1}{2\pi i}\int_{g-i\infty}^{g+i\infty} \Gamma(z)x^{-z}\, dz = \sum_{0}^{\infty} \frac{(-x)^n}{n!} = e^{-x}. \tag{4}$$

Now let us consider the Dirichlet's series

$$\sum_{1}^{\infty} n^{\lambda}\, e^{-sn^a}, \qquad (0<a<1), \tag{5}$$

where s and λ are both independent complex variables, and n^{λ} and n^a are defined by $e^{\lambda \log n}$ and $e^{a \log n}$ respectively, where $\log n$ has its real value.

Suppose, for a moment, that s and λ are real and positive, $g > 0$, and n^{-au} has its principal value. Then, by Mellin's formula, we have

$$e^{-sn^a} = \frac{1}{2\pi i}\int_{g-i\infty}^{g+i\infty} s^{-u}\Gamma(u)\, n^{-au}\, du. \tag{6}$$

If further $g > \frac{1+\lambda}{a}$, we may multiply both sides of (6) by n^{λ} and sum under the sign of integration from 1 to ∞, obtaining

$$(7) \qquad H(s, \lambda) = \sum_1^{\infty} n^{\lambda} e^{-sn^a} = \frac{1}{2\pi i} \int_{g-i\infty}^{g+i\infty} s^{-u} \Gamma(u) \zeta^*(au-\lambda)\, du,$$

since $$\int_{g-i\infty}^{g+i\infty} |s^{-u}| |\Gamma(u)| \sum_1^{\infty} |n^{\lambda-au}| |du|$$

converges like

$$\int_0^{\infty} e^{-\frac{\pi}{2}t} t^{g-\frac{1}{2}} dt, \qquad \sum_1^{\infty} |n^{\lambda-au}| \text{ being } 0 \ldots (1).$$

Now integrate $s^{-u}\Gamma(u)\,\zeta(au-\lambda)$ over the rectangular contour whose corners are

$$g \pm i\infty, -n-\tfrac{1}{2} \pm i\infty.$$

First of all, we shall show that the contributions of the sides parallel to the real axis vanish. On any one of these sides $u = x + it$, where $-n-\frac{1}{2} \leq x \leq g$, $|t| \to \infty$.

$$\text{Suppose } I_1 = \int_{-n-\frac{1}{2}+it}^{g+it} s^{-u} \Gamma(u)\, \zeta(au-\lambda)\, du.$$

Then

$$|I_1| \leq \int_{-n-\frac{1}{2}}^{g} x^{-s} e^{-\frac{\pi}{2}|t|} |t|^{x-\frac{1}{2}} (\sqrt{2\pi}+\epsilon) \times |\zeta(a\,x-\lambda+ait)|\, dx, \ \epsilon \to 0, \text{ as } |t| \to \infty.$$

*ζ is the Riemann's zeta-function.

Now

$$|\zeta(ax-\lambda+ait)| = O(|ta|^{\tau(ax-\lambda)} \log|at|),^*$$ where $\tau(\sigma)$ is linear in σ, and the constant implied in the symbol O is independent of t. The range of integration being fixed, the last integral $\to 0$, as $|t| \to \infty$, owing to the predominant factor $e^{-\frac{\pi}{2}|t|}$. Therefore, the contributions of the sides parallel to the real axis vanish.

From (7) we have, therefore,

(8) $H(s, \lambda) =$ (sum of the residues of the function $s^{-u}\Gamma(u)\,\zeta(au-\lambda)$ at the poles $u = \frac{1+\lambda}{a}, 0, -1, -2, \ldots -n$)

$$+\frac{1}{2\pi i}\int_{-n-\frac{1}{2}-i\infty}^{-n-\frac{1}{2}+i\infty} s^{-u}\,\Gamma(u)\,\zeta(au-\lambda)\,du.$$

Now we proceed to show that the integral, say I_2, on the right-side of (8) $\to 0$, as $n \to \infty$.

Put $u = -n-\frac{1}{2}+it$. Then

$$\Gamma(-n-\tfrac{1}{2}+it) = \frac{\pi}{\Gamma(\frac{3}{2}+n-it)\sin\pi(-n-\frac{1}{2}+it)}.$$

Also using the Riemann's functional equation, we have

$$\zeta(-a(n+\tfrac{1}{2})-\lambda+ait) = 2.(2\pi)^{(-a(n+\frac{1}{2})-\lambda-1+ait)} \cdot \Gamma(1+\lambda+a(n+\tfrac{1}{2})-ait)\times$$

$$\zeta(1+\lambda+a(n+\tfrac{1}{2})-ait)\,\sin\left(\frac{\pi}{2}(-an-\frac{a}{2}-\lambda+ait)\right),$$

$$= O\left\{\frac{e^{\frac{\pi a}{2}|t|}}{(2\pi)^{an}}\,|\Gamma(1+\lambda+a(n+\tfrac{1}{2})-ait)|\right\},$$

where O is independent of n.†

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* Whittaker and Watson, *Modern Analysis*, Third Edition, p. 276.

† This shall stand for 'where the constant implied in the symbol O is independent of n.'

Therefore

$$\Gamma(-n-\tfrac{1}{2}+it)\,\zeta\left(-\alpha n-\frac{\alpha}{2}-\lambda+\alpha it\right)=O\left\{e^{\left(\frac{\pi}{2}\alpha-\pi\right)|t|}\frac{}{(2\pi)^{\alpha n}}\right.$$

$$\left.\left|\frac{\Gamma(1+\lambda+\alpha(n+\tfrac{1}{2})-\alpha it)}{\Gamma(\frac{3}{2}+n-it)}\right|\right\},$$

where O is independent of n. Now, using Stirling's formula, we have

$$\left|\frac{\Gamma(1+\lambda+\alpha\,(n+\tfrac{1}{2})-\alpha it)}{\Gamma(\frac{3}{2}+n-it)}\right|\sim\left|exp.\left\{(\tfrac{1}{2}+\lambda+\alpha(n+\tfrac{1}{2})-\alpha it)\times\right.\right.$$

$$\log\,(1+\lambda+\alpha\,(n+\tfrac{1}{2})-\alpha it)-(1+n-it)\log\,(\tfrac{3}{2}+n-it)$$

$$\left.\left.+\left(\tfrac{1}{2}-\lambda+n\,(1-\alpha)-\frac{\alpha}{2}-it\,(1-\alpha)\right)\right\}\right|,$$

$$=O\left\{e^{n(1-\alpha)+(\frac{1}{2}+\lambda+\alpha(n+\frac{1}{2}))\log\sqrt{[1+\lambda+\alpha(n+\frac{1}{2})]^2+\alpha^2t^2}}\right.$$

$$\times e^{-(1+n)\log\sqrt{(\frac{3}{2}+n)^2+t^2}+|t|\tan^{-1}\frac{|t|}{\frac{3}{2}+n}}$$

$$\left.\times e^{-|t|\,\alpha\tan^{-1}\frac{|t|}{n+\frac{1}{2}+\frac{1+\lambda}{\alpha}}}\right\},$$

where O is independent of n.

Therefore

$$\Gamma(-n-\tfrac{1}{2}+it)\,\zeta(-n\,\alpha-\frac{\alpha}{2}-\lambda+\alpha it)=O\left[\frac{e^n}{(2\pi e)^{\alpha n}}\cdot exp.\left\{\left[-\pi\right.\right.\right.$$

$$\left.\left.\left.+\frac{\pi}{2}\alpha+\tan^{-1}\frac{|t|}{\frac{3}{2}+n}-\alpha\tan^{-1}\frac{|t|}{n+\frac{1}{2}+\frac{1+\lambda}{\alpha}}\right]|t|+[\tfrac{1}{2}+\lambda\right.\right.$$

$$\left.\left.+\alpha(n+\tfrac{1}{2})]\log\sqrt{[1+\lambda+\alpha\,(n+\tfrac{1}{2})]^2+\alpha^2t^2}-(1+n)\right.\right.$$

$$\left.\left.\times\log\sqrt{(\tfrac{3}{2}+n)^2+t^2}\right\}\right],$$

$$= O\left\{ \frac{e^{n-\frac{\pi}{2}|t|}}{(2\pi e)^{an}} \cdot \frac{[1+\lambda+\alpha(n+\frac{1}{2})]^{(\frac{1}{2}+\lambda+\alpha(n+\frac{1}{2}))}}{(\frac{3}{2}+n)^{1+n}} \right\}$$

for $0 < \alpha < 1$, O being still independent of n, which is sufficiently large.

Therefore

$$|I_2| = O\left(\frac{(es)^n}{(2\pi e)^{an}} \cdot \frac{(1+\lambda+\alpha(n+\frac{1}{2}))^{(\frac{1}{2}+\lambda+\alpha(n+\frac{1}{2}))}}{(\frac{3}{2}+n)^{1+n}} \int_0^\infty e^{-\frac{\pi}{2}t} dt \right)$$

where O is independent of n.

Therefore $|I_2| \to 0$, as $n \to \infty$, s and λ remaining bounded; for $0 < \alpha < 1$.

From (8), we, therefore, have

$$(9) \qquad H(s, \lambda) = \frac{1}{\alpha} \Gamma\left(\frac{1+\lambda}{\alpha}\right) s^{-\left(\frac{1+\lambda}{\alpha}\right)} + \sum_0^\infty \frac{(-s)^n}{n!} \zeta(-\alpha n - \lambda).$$

This equation has been obtained on the assumption that s and λ are real and positive. Now we proceed to show that the right-hand side is regular and uniform everywhere in the plane of s, when it has been cut along the real negative axis, with the exception of the sole finite singularity at $s = 0$, λ having any value real or complex.

Suppose, in the first place, that $\frac{1+\lambda}{\alpha}$ is not zero, or a negative integer. Then the first term on the right side of (9) is regular and uniform everywhere in the plane of s, when it has been cut along the negative real axis, with the exception of the sole finite singularity at $s = 0$, which is algebraic, $s^{-\left(\frac{1+\lambda}{\alpha}\right)}$ being interpreted to mean

$$\exp.\left\{-\left(\frac{1+\lambda}{\alpha}\right)\log s\right\},$$

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* λ being bounded, n being sufficiently large, and $0 < \alpha < 1$, the expression $[\frac{1}{2} + \lambda + \alpha(n+\frac{1}{2})] \log \sqrt{[1+\lambda+\alpha(n+\frac{1}{2})]^2 + \alpha^2 t^2} - (1+n) \log \sqrt{(\frac{3}{2}+n)^2 + t^2}$ always remains negative, as $|t|$ goes from 0 to ∞, and attains its maximum value when $t = 0$.

where $\log s$ has its principal value. As regards the series, we write it in the form

$$\sum_0^\infty \frac{(-s)^n}{n!} 2.(2\pi)^{-(1+\lambda+\alpha n)} \Gamma(1+\lambda+\alpha n)\, \zeta(1+\lambda+\alpha n) \times \sin\left[\tfrac{\pi}{2}(-\alpha n-\lambda)\right].$$

Now $\sin\left[\frac{\pi}{2}(-\alpha n-\lambda)\right] \times \zeta(1+\lambda+\alpha n)$ is bounded, if λ is bounded, for all values of n; while, when n is large,

$|\Gamma(1+\lambda+\alpha n)/\Gamma(n+1)|$ behaves like $n^{-(1-\alpha)n}$.

The series, therefore, converges for all bounded values of s and λ, except when $\frac{1+\lambda}{\alpha} = 0$, or a negative integer, like the series

$$\Sigma \left| \frac{s}{n\left(\frac{2\pi}{n}\right)^\alpha} \right|^n.$$

Next, we proceed to show that when $\frac{1+\lambda}{\alpha} = 0$, or a negative integer, the singularity of the first term is neutralized by that of the second term on the right side of (9). Suppose, firstly, that $\lambda = -1 + \epsilon$, $(\epsilon \longrightarrow 0)$.

Then the right side of (9) becomes

$$(\gamma - \frac{1}{\alpha}\log s) + \sum_{n=1}^\infty \frac{(-s)^n}{n!}\zeta(1-\alpha n),$$

where γ is Euler's constant, and the series represents an integral function of s. So that, we have

$$(10)\quad H(s) = \sum_1^\infty \frac{e^{-sn^\alpha}}{n} = (\gamma - \frac{1}{\alpha}\log s) + \sum_{n=1}^\infty \frac{(-s)^n}{n!}\zeta(1-\alpha n),$$

the right side having a logarithmic singularity at the origin.

Next, suppose that $\frac{1+\lambda}{\alpha} = -p + \epsilon$, $(\epsilon \longrightarrow 0)$, where p is a positive integer > 1. Then it can be easily deduced from the known properties of $\Gamma(z)$ that

$$\Gamma(-p+\epsilon) = \frac{R}{\epsilon} + A_0 + A_1\epsilon, \quad \text{where } R = \frac{(-1)^p}{p!},$$

$$A_0 = \frac{(-1)^p}{p!}\left\{(1+\tfrac{1}{2}+\ldots\frac{1}{p}) - \gamma\right\},$$

where γ is Euler's constant. Also $\zeta(1-a\epsilon) = \left(\gamma - \frac{1}{a\epsilon}\right)$

So that, we have

$$(11)\quad H(s) = \sum_1^\infty \frac{e^{-sn^a}}{n^{1+ap}} = \frac{(-s)^p}{p!}\left\{\gamma\left(1-\frac{1}{a}\right) + \frac{1}{a}\left(1+\tfrac{1}{2}+\ +\frac{1}{p}\right)\right.$$

$$\left. -\frac{1}{a}\log s\right\} + \sum_{n=0}^{\infty'} \frac{(-s)^n}{n!}\zeta(1+ap-an),$$

$\sum'$ denoting that the summation excludes the value $n = p$. The origin is again a logarithmic singularity, and the infinite series on the right side represents an integral function of s.

Summing up, we say that the right-side of (9) represents an analytic function of s and λ, for all values of s and λ except $s = 0$, the value of s lying in the cut-plane, and $\log s$ having its principal value.

Formula (9) also enables us to study the series

$$\sum_1^\infty \sin(\log n)\ e^{-sn^a},$$

and

$$\sum_1^\infty (\log n)\, e^{-sn^a}.$$

The function represented by the second series is obtained, using the classical theorem of Weierstrass,* by differentiating the right-side of (9) with respect to λ, and then putting $\lambda = 0$. That is,

$$(12)\quad f(s) = \sum_1^\infty (\log n)\, e^{-sn^a} = a^{-\frac{1}{2}}\left\{s^{-\frac{1}{a}}\left[\Gamma'\left(\frac{1}{a}\right) - \Gamma\left(\frac{1}{a}\right)\log s\right]\right\}$$

$$-\sum_0^\infty \frac{(-s)^n}{n!}\,\zeta'(-an)$$

the origin now being both an algebraic and a logarithmic singularity.

The method pursued above applies equally well to the more general series

$$\sum_1^\infty (n+a)^\lambda \exp.(-s(n+a)^a),\quad 0 < a < 1,\quad 0 < a \leqq 1.$$

* Goursat, *Functions of a Complex Variable*, p. 88.

ARTS

SECTION 1

HISTORY

THE DEVELOPMENT OF MYSTICISM IN ISLAM

BY

Dr. TARACHAND, M A., D.PHIL.

The land where Islam arose is one of the least hospitable regions of the earth. Vast tracts in Arabia are mere empty plains of drifting sands. Only on the coast is it possible for human beings to live with moderate comfort and to create institutions of civilisation. And here in ancient times kingdoms grew and culture flourished and the Arabs partook of the ancient commerce of the world and were its intermediaries. But in the sixth century the legends of antiquity had become effaced from the mind of the peoples and the Arabs had sunk into a life of barbarism. Mecca, one of the principal places in the country, was a materialistic commercial town " where lust of gain and usury reigned supreme, where women, wine and gambling filled up the leisure time, where might was right, and widows, orphans and the feeble were treated as superfluous ballast." Religion consisted of ceremonialism without meaning, of the worship of stars, stones and deities, in which no one believed. The notions of right and wrong were rudimentary, no moral guilt attached to murder, little sanctity to marriage. Women had no rights. Property, loyalty and honour were held in scant respect, and sensuality was rampant.

In this physical and moral desert there were here and there oases which gave shelter to high aspiration and noble thought. Communities of Jews and Christians were settled in scattered places, itinerant monks and wise men from the East travelled about with caravans. In some way they supplied some kind of nourishment to the otherwise starved souls,

and from their contact arose the early reformers, known as the Hanifs who strove to mend men's ways and to turn their hearts to the worship of God.

The stir in moral life was an echo of the stir in social life. Already before the sixth century Arab tribes driven by economic causes—growth of population and others—were moving in the directions of Mesopotamia and Syria, and their movements and contacts with the settled civilizations were reacting on the peoples left behind.

In the midst of such conditions the Prophet of Islam was born. He belonged to a family whose means were small and he was left an orphan at an early age. He grew up to manhood untutored and uncared for, amid circumstances of great poverty and hardship. The stress of personal misery, and the sense of humiliation caused by the inglorious condition of his peoples deeply affected his sensitive soul. The teachings of the Hanifs, the ascetic practices and lonely self-communings on Mount Hira led to a religious crisis in his highly strung and mystically inclined nature, and occasioned the ecstatic religious experiences which changed his entire outlook upon life.

Out of the living fear of the approaching day of judgment, the crushing conviction of sin, the hopeless emptiness of Meccan ritual and the utter wretchedness of their social life, his soul-illuminating experience redeemed him. The revelation tore asunder the veil of illusion and ignorance and gave him that knowledge than which no other possesses greater certitude and higher coercive power for action.

Muhammad became the recipient of God's commands, His messenger on earth and His apostle to the people of Arabia. In him like other deep religious mystics religious fervour was combined with intense practical sense, and he became not only the prophet of a new religion but also the leader and creator of a new nation.

The religion which he preached was exceedingly simple. It possessed the minimum of doctrine and ritual, for according to the Koran God wanted to make the burden of men light and easy. His central doctrine was the unity of God, and his most important ritual the daily prayers. Fast, alms, pilgrimage and belief in Muhammad as the Prophet of God were the main pillars of the faith. On the social side its most impressive feature was the assertion of the equality and brotherhood of the Muslims and hence the absence of a priestly class. The doctrine of the unity of God implied complete rejection of worship of deities or of adoration of idols. The characteristics of the Muslim religious consciousness were vivid realisation of the ever-present nearness and all-encompassing power of God, lively dread of the awful consequences of disobedience to His will, and a feeling of profound submission and entire dependence on His mercy and grace, altogether a consciousness of calm and stern resignation.

Within a short period after the death of the Prophet his simple faith had begun to branch out into sects and systems under pressure of life and logic. Politics was the cause of the first divisions. The sects of the Kharijia, Shiah, Murjia and Qadiriya were the earliest to make their appearance. The Shiahs who soon spread into Persia had a most luxuriant growth of fantastic systems of great interest. The extreme Shiahs known as the Ghulat had doctrines curiously resembling those found in Hinduism. For example, they believed in excess (ghulu) and defect (taqsir), by the former of which they meant that man might be raised to the position of God and by the latter that God might be reduced to the status of man. As a consequence of these doctrines they raised their leader and preceptor to the position of divinity. Then they believed that God could pass into human form (hulul) and also in the doctrine of metempsychosis (tanasukh), of an anthropomorphic God (tashbih), of change in divine purpose (bidá), and of the

return of the Imam (rajá). These extreme sects were known by various names Khurumiyah in Isfahan, Kudiyyah in Ray, Mazdakiyah and Sindbadiyah in Azarbaijan, Muhammirah (red-robed ones) and Mubayyazah (white-robed ones) in Transoxiana. But of peculiar interest among them were the Ali-Ilahiyas who seemed to have come into existence early in Islamic history. They were settled in Persia and India and came under the notice of the author of *Dabistani-Mazahib*.

The Ali-Ilahiyas were an extreme Shiah sect who believed in the divinity of Ali, did not go to mosques, did not recognise ritual uncleanliness, did not permit polygamy or divorce, and allowed men and women to dance together in weddings. They believed in five emanations from God which took part in the creation of the universe. They held a communion (khidmat) which consisted in sharing and eating in common sugarcandy or a sacrificed sheep or on solemn occasions a bull. According to them man was swayed by two forces, reason ('aql) and lust (nafs). Their order had a hereditary head (pir), who was assisted by a conductor of ritual ceremonies (khadim or dalil) and by a representative (khalifa) who distributed portions of the meal of communion. The poet Al Sayyid al Himyari (723—789 A.D.) was claimed by them as belonging to their sect.

There were others among Shiahs who refused to believe in the open meaning of the Koran and who interpreted it allegorically. To them prayer meant supplication to the Imam. charity (zakat), donation to the Imam, and pilgrimage (haj), visit to the Imam.

The Shiahs whether of extreme or moderate parties held one cardinal tenet—that of the Imamate. For Shiism centres religious authority in an inspired person whose presence is the only true guarantee of right guidance. The Imam originally had two functions, one of leading in prayer

and the second of ruling the Muslim community; but the death of Ali and his sons Hasan and Husain extinguished the hope of political dominion. "The Shiahs made the best of necessity and gave themselves now to an ambition for religious leadership. The representatives of the house of Ali became the indispensable heads of Islam, the Imams of the believers." His claim was twofold, the right by virtue of inheritance, and "the further claim that the celestial light substance which was lodged in Muhammad was likewise received into the souls of the Imams in succession." The Imams were infallible and sinless, and because of the light within them incorruptible and immortal. "The extreme sect of the Shiahs exaggerated the enduement of the Imams and claimed that some or all of them were of divine nature or incarnate manifestations of God. On this belief they offered to them divine honours." According to Nicholson, "the notion of Theios anthropos (of the Hellenists) passed over into Islam through the Shiites and became embodied in the Imam, regarded as the living representative of God and as a semi-divine personality on whom the world depends for its existence."

From such early Shiite sects grew the later Seveners and Twelvers. The founder of the first was Abdallah ibn Maimum, a refined Persian sceptic whose aim was the overthrow of the Arab supremacy. The number seven had a mystic significance in his system. He taught that there were seven prophets who had seven helpers, and between each prophet and his successor there were seven Imams, he himself being the last and greatest of all. In his metaphysics God was an absolute being who had no attributes and no name. He was the pre-existent one, and from His thought emanated the second being or God who created and governed the world. In these two beings—one without attribute and the other with attributes—there is close analogy to the Brahman and Isvara of the Hindu systems.

The Prophet was the hypostasis of the Divinity, an emanation some degrees removed from the Creator ; in fact all living beings formed a chain of such emanations from the Pre-existent, their only difference being their distance from Him, hence all would ultimately return to Him after an indefinite number of hypostases. The initiate in the order passed through various stages with the help of his teacher till he attained the station of the Prophet.

The Karmathians were a branch of the Ismailians (Seveners) who separated from the parent sect in 890 A.D.

The Twelvers (Asna Ashariya) believe in twelve Imams, descendants of Ali, the last of whom was Muhammad ibn Hasan who disappeared in 873 A.D. and whose return is expected. The Safavids who conquered Persia in 1502 A.D. belonged to this sect (the 'orthodox' Shiah sect).

Besides them were the Assassins whose stronghold was Alamut and Masyaf in Syria and who were stamped out by Hulaku ; also the Fatimides, the Druzes and the Nusairis.

Of still greater importance were the developments in other sects, which were mainly divided on theological grounds. The questions which agitated the minds of Muslim theologians related principally to the nature of God, His relation to creation, His relation to man, the nature of soul and the nature of the knowledge of God. The most influential among the early sects were the Mutazalites, the rationalists of Islam.

They were the successors of the Qadirites who believed in the freedom of will, and the first to employ philosophy in religious discussions. The Mutazalites were originally a group of ascetics who lived in retirement and who gave impetus to the movement which gathered round itself the rationalists of Islam. They also had a close connection with the Shiites who had an intellectual affinity with them.

The founder of the school was Wasil bin Ata, a pupil of the famous teacher Abul Hasan Basri, who seceded from his master and earned the name by which his followers became famous. The other noted leaders were Amr ibn Ubaid (d. 144 A.H.), Abul Hudhail (135—226 A.H.), An-Nazzam (d. 231 A.H.), Bishr ibn Mutamir (lived during the Caliphate of Rashid), Thumama ibn Ashras (d. 213 A.H.), Al Jahiz (d. 255 A.H.), Al Khaiyat (230 A.H.) and Al Jubbair (d. 303 A.H.).

The general tendency of the Mutazalites was to turn from the objective and external standards of truth to a subjective critical, even sceptical attitude of mind. Naturally they made reason ('aql) the chief source of religious knowledge. The point of view which dominated their theological reasoning was to purify the monotheistic idea of all obscurities and deformations which it had acquired in popular belief, both in ethics, and metaphysics. Like Sankara they combated vigorously for the Monistic conception of God. In this they had to fight against the anthropomorphists who pointed to the passages of the Koran and the Hadis which have anthropomorphic tendencies. These passages were explained by them according to their own methods of interpretation (tawil). Then they had to fight those who held that God possessed attributes of knowledge, power and so forth. The attribution of eternal qualities to God was to admit plurality, to admit the existence of other eternals besides the one eternal God. Like the Hindu monists, Abul Hudhail held that God was knowing, powerful, loving, but his knowledge, power and love constituted His very essence (dhat), that God's qualities could only be described in negatives, and that they existed only as hypostases of the divine essence. In the hands of Mamar ibn Abbad this unity of God became merely an abstract possibility of which nothing could be predicated, hence God became unknowable. The disciples of Nazzam took the next step forward and recognis-

ed besides the absolute God who was unpredicable, the contingent God who was creator and ruler.

With regard to creation Abul Hudhail taught that creation meant change, and annihilation repose, and that they alternated eternally ; others held that creation was actualisation of pre-existing potentialities or the manifestation of what was hidden. An-Nazzam established the idea of law, and of the gradual evolution of the world from the pre-existent unmanifest state in accordance with an internal necessity. Thus in relation to the universe God was an efficient cause only, the universe followed its own immutable law.

The outstanding characteristic of Mutazala metaphysics was unity, and that of their ethics, justice. The idea of justice for them was all-comprehensive, so that even God could not conceivably transcend it, even His power was limited by the exigencies of justice. It followed from this that as God had created man for his good, it was necessary for Him to send His prophets to guide man and instruct him in His ways, so that divine grace was obligatory (lutf wajib); human welfare demanded that it should be necessary. Another important consequence of the principle was that good and evil were determined not by the arbitrary will of God, but according to an absolute standard—the law of the categorical imperative which bound God Himself.

Man's will was free and hence the responsibility of choosing good or evil rested on him, and according as he chose one or the other he merited punishment or reward. The Mutazalites' view of life was tinged with asceticism. Masudi in praising their ideas quotes Amr ibn Ubaid's words. He said " Desire blinds man, and death separates him from his hopes. The world is a station where the voyager camps but for a moment and then goes away. Its pleasures are woes, its snares fatal, its serenity agitation

and its kindgom revolution. The quiet of man is disturbed by perpetual alarms, both peace and unrest are unreal, for death is man's end. He is the plaything of adversity, the offspring of destiny. Let one fly to save himself and there death is in ambuscade, let there be one false step and there is a fall. Man exhausts himself in action, but his efforts benefit only his inheritors and the tomb gathers the fruits of his exertions."

Lastly in regard to revelation they held that the Koran was not the eternal, uncreate, infallible word of God; thus they were upholders of a progressive revelation which is in consonance with the growing needs of humanity.

The vigorous application of logic to theology led to the formulation of an abstract impersonal absolute God, which hardly fulfilled the two universal needs of man—dependence on a power greater than his own, and devotion to a person or ideal which evokes the deepest emotions of love. As a reaction against Mutazalism these two tendencies already in existence made vigorous headway, while two other tendencies—both results of rationalism, made their appearance, that is, philosophic speculation and agnosticism or downright atheism. Of the first set of these tendencies the traditionalists and the jurists were the chief representatives—the six celebrated collectors of the sayings of the Prophet, and the four great Imams who compiled the codes af laws. The ascendancy of the liberals (Mutazalites) did not mean the triumph of liberty, for their hand had fallen heavily upon their rivals and one of the most respected of the jurists Ibn-Hanbal had to suffer the consequences of his honesty and independence. It was only in the reign of Mutwakkil that the adherents of the old regime were able to raise their head.

Abul Hasan Al Ashari was the leader of this movement. He was born in 873 A.D. (260 A.H.) and was descended from Abu Musa, a respected companion of the Prophet. He

spent the larger part of his life in Baghdad. He began as an adherent of the Mutazalites and for forty years remained with them. In the end he quarrelled with his teacher Jubbai on the question of necessary grace and after a short but sharp internal struggle became a convert to traditionalist ideas. He publicly abjured Mutazala and henceforth spent his whole energy in combating heterodox views by public lectures and books. He died sometime between 931 and 941 A.D.

Ashari occupied a position midway between the extreme absolutists, the Mutazalites, and the extreme anthropomorphists, Mushabihides and Kharijites. He utilised the dialectics of the Mutazala but combined it with ancient traditions and thus established a new school of theology. His view of God's nature was different both from the impersonal abstraction of the rationalists and the gross realism of the materialists. According to him God possessed all good qualities, but they did not bear any resemblance with human qualities. Similarly with regard to matter he conceded existence to it and did not hold that existence was conferred upon it by God, and with regard to human destiny and conduct he believed in the acquisition of grace by man's own effort, and in the intercession of the Prophet with God's permission.

Ashari's ideas were developed a century later by Baqillani who died in 1012 A.D. and by the latter's successor a hundred years after Al-Ghazali (1057—1112) who set the seal upon Muslim theology. He is regarded by the Muslims their greatest authority in theology, the Proof of Islam (Hujjat-al-Islam); Renan considered him "the most original mind among Arabian philosophers," and Tholuck's opinion of him was, "this man, if ever any have deserved the name, was truly a 'divine.'"

Ghazali was born at Tus. He early lost his father and was brought up by a Sufi friend. He studied theology and

canon law, but soon broke away from authority and tradition and then devoted himself to dialectics, logic, science, philosophy and Sufism. The fame of his learning spread widely, and in 1085 he was appointed by Nizam-ul-Mulk to the Nizamia Academy in Baghdad. Ten years later he was struck with a mental malady and was obliged to leave Baghdad. He became a sceptic and lost all faith in religion. Out of his doubts he was lifted by his mystic experiences, and then abandoning reason he came to rely upon mysticism. He rejected the teaching of the traditionists because it appeared to him childish, but he found no satisfaction in scholasticism (kalam) nor in science or philosophy. The only true way of knowledge was through ecstasy and direct intuition. Therefore he devoted himself to mystical exercises in retirement from the world and at last acquired the peace of mind which he desired. In 1006, he was appointed to the academy of Nishapur, but he soon left it, and went back to Tus where he established a school and a monastery (khanqah). Here he wrote his book in refutation of philosophy (Tahafatul philasapha) and here in 1012 he died.

Ghazali made important contributions to Islamic theology. In the theory of knowledge he discarded, as stated above, the ultimate authority of reason, and made direct realisation (the Samadhi of the Hindus) the proof of religion. Like the Hindu philosophers he argued that through ordinary means of knowledge man can know only the relative and as God is absolute he cannot gain any positive knowledge of His qualities or nature. He must therefore depend upon revelation—prophetic or personal, to obtain that knowledge. He further taught that it was possible to know God because God's nature was not different in essence from that of man, and that the human soul partook of the divine and would after death return to its divine source.

On the plane of the relative he accepted the teaching of science concerning the universe, although he maintained

that behind the order of nature lay the Absolute Being whose will dominated all. The universe existed in three modes—the world of sense or change ('alam-ul-mulk), the world of power ('alam-ul-jabrut), and the world of eternal repose ('alam-ul-malakut). The three worlds were not discrete in time and space but were modes of existence like the ideas of Plato.

Ghazali completed the circle in which philosophic speculation ever moves. The Mutazala had started the circle by making reason the arbiter in religion, but the pitiless course of their own logic led to its final dethronement at the hands of Ashari and Ghazali. Outside the ranks of the dialecticians the movement of speculation ran into several channels. Scholastic rationalism branched off into atheism or rather scepticism, into pure philosophy, and into a complete denial of intellectualism, that is mysticism.

The sceptics and atheists were usually found among the poets, scientists and others who had all come under the influence of Persian and Indian thought. The names of the early sceptics have been enumerated by Jahiz (869 A.D.) and their doctrines noted by Tabari (839—923 A.D.). Ibn Hazm (d. 1064 A.D.) and Ghazali have attempted to classify them. They generally deny the existence of a personal God, and an immortal soul, show contempt for the prophets and for religious ordinances, and believe in the eternity of the universe, or in the eternity of two or three principles.

Caliph Yazid (d. 744 A.D.) was reckoned among them, the poets Abu Tammam (d. 846 A.D.) and Mutanabbi (d. 965 A.D.) were suspected of sceptic leanings, but of course the greatest of them all were Abul Ala al Maari (d. 1057) and Umar Khayyam (d. 1123 A.D.).

Regarding Abul Ala, the translator of his diwan Henry Baerlein says, that he "was not merely saddened by the politics and the religion of the period; his meditations had been most profound; they had been influenced by

Buddha." Abul Ala was a believer in transmigration, a rigid vegetarian who disapproved of the use of milk, honey and leather, and had a tender regard for animal life, an abstemious ascetic in his clothing and food, a recluse, an upholder of celibacy. Yet he was one of the greatest of Arab poets, a deeply learned scholar who gathered round him hundreds of students from all lands, and a kindly helper to those who stood in need of his aid. Abul Ala was a foe of external piety and formal religion, for he sang,—

> Abandon worship in the mosque and shrink
> From idle prayer, from sacrificial sheep,
> For Destiny will bring the bowl of sleep
> Or bowl of tribulation—you shall drink.

and again,—

> So, there are many ways and many traps
> And many guides, and which of them is lord?
> For verily Mahomet has the sword,
> And he may have the truth—perhaps! perhaps!

and with regard to prophets and paradise,—

> "There is no God save Allah!"—that is true,
> Nor is there any prophet save the mind
> Of men who wanders through the dark to find
> The paradise that is in me and you.

His view of the world is that it is illusory,

> Perchance the world is nothing, is a place
> Of dream, and what the dreamland people say
> We sedulously note, and we and they
> May be the shadow of shining race.

And he is a confirmed pessimist, who revels in pain and finds in it man's opportunity to live nobly,—

> We suffer—that we know, and that is all
> Our knowledge. If we recklessly should strain
> To sweep aside the solid rocks of pain,
> Then would the domes of love and courage fall,

Umar Khayyam is so well-known that it is hardly necessary to do more than just mention him.

The philosophers of Islam—Al-Kindi, Farabi (d. 950 A.D.) the Brothers of Purity (Ikhwan us-Safa), Ibn Maskawaihi and Ibn Sina (d. 1036 A.D.) in the east, and Ibn Baja (d. 1138 A.D.), Ibn Tufail (d. 1185) and Ibn Rushd (d. 1198) in the west, do not need extended notice. Their metaphysical systems were largely based on Greek philosophy. It is however interesting to note that Al-Nadim obtained information about Indian religious sects for his Fihrist from a treatise compiled by Al-Kindi, who in his turn depended on the account of an envoy sent by Yahya ibn Khalid the Barmekide to India. Farabi was an encyclopedic writer, for besides logic and metaphysics he wrote on ethics, politics and music. He attempted to combine the systems of Plato and Aristotle, and his logic became the basis of Ibn Sina's philosophy. Ibn Sina shares with Ghazali and Ibn Rushd the premier position among the Muslim thinkers. His canon is almost the last word on Muslim medicine, and in philosophy he is unsurpassed for the penetrating keenness of his mind and the subtlety of his thought.

The philosophers introduced Neo-Platonic ideas of emanation into Muslim thought and sowed the seeds whose intellectual harvest was gathered by the Sufis. If Ghazali starting from dogma landed into mysticism, Ibn Sina whose point of departure was Greek philosophy reached the same destination. He held that reason was of value in science only, but beyond reason was intuition which gave a simpler, more direct, and more adequate knowledge of the absolute truth. His metaphysics served as grist to the Sufistic mill, for he conceived of the ultimate reality as eternal beauty, whose nature being self-expression, it saw itself reflected in the universe-mirror. This self-expression is love, for

love is appreciation of the beauty which is perfection. Love is thus the moving energy of the world, it makes beings strive after their original perfection from which in creation they have travelled away, and it is by love that human soul realises its unity with the ultimate reality.

Every avenue of thought thus led to Sufism, whether it was Mutazalah dialectics, orthodox scholasticism or pure philosophy. Apparently the causes of such a convergence were not merely logical necessity, there were deeper social causes,—among others the exhaustion of the energy which had led to the establishment of a world-wide empire, and the uprise of the racial spirit which brought about the downfall of the Abbaside Caliphate. Their result in the domain of thought is clear, from the twelfth century onwards the sway of Sufism becomes increasingly dominant over the Muslim mind; literature, philosophy and religion become all subject to its sovereign power.

It is time then to turn back and trace the beginning and gradual development of Sufi tendencies in Islam.

Sufism is a complex phenomenon; it is like a stream which gathers volume by the joining of tributaries from many lands. Its original source is the Koran and the life of Muhammad. Christianity and Neo-Platonism swelled it by a large contribution. Hinduism, and Buddhism supplied a number of ideas, and the religions of ancient Persia—Zoroastrianism, Manism, etc., brought to it their share.

Muhammad was a mystic, and the mystical note sounds clearly in the utterances of the Koran. The Mecca Suras mainly and the Medina Suras occasionally are charged with deep religious devotion and ascetic feeling. They teach absolute dependence and renunciation. God is spoken of as the light of heavens and earth. God says concerning the believers, "He loves them and they love Him" and therefore He bears the beautiful name of lover (wudud).

Again the Koran says, " Those who walk meekly on the earth, and when the ignorant speak to them answer ' Peace ' shall be rewarded with the highest place in Paradise." Then from the earliest times there were among Muslims the devotees who were continually engaged in reading the Koran and the penitents (Bakaun) who kept fasts, and said orisons. In spite of Muhammad's insistence upon moderation, asceticism and abstinence were regarded specially commendable by those called Zahids (abstainers) and Ubbad (servants), whose motto was ' flee from the world ' (al-firar min al-duniya). These ascetics developed the ordinary rites by works of supererogation; their prayers were more numerous and more highly spiritualised, their fasts more continuous and severer. Naturally their ethics and mode of living were held up as an example of saintly life, and their services utilised in roles of preachers, arbiters, ambassadors and leaders.

When Muslims came into contact with the Christians these tendencies were accentuated—in liturgical matters, meditation and repetition of God's name and prayer (dhikr), and in ethical, complete detachment from affairs of personal interest, utter dependence upon God (tawakkul), rejection of material goods (fuqr), indifference towards suffering or sickness, praise or blame. Abu Abdullah al Harith al-Muhasibi (d. 857-8) who is the earliest Sufi author whose work is preserved shows evident traces of the use of the Christian Gospels, one of his works beginning with the parable of the Sower and another being an expansion of the Sermon on the Mount.

The Neo-Platonists strengthened the feeling of contempt for the world and supported the leanings towards divine life by their doctrines of emanation and of dynamic pantheism. The Neo-Platonic ideas passed into Islam when in the beginning of the ninth century Greek works were translated into Arabic.

The third foreign source of Muslim mysticism was Indian. It may be pointed out that India and the Persian Gulf had a close commercial intercourse from the earliest times. With trade undoubtedly ideas were exchanged. It stands to reason that if things of material use like Indian steel and sword and Indian gold and precious stones and if things of artistic value like the pointed arch and the bulbous dome reached Persia and Iraq, Indian philosophical ideas should have travelled there too. Many Indians held posts in the financial department at Basra under the early Umayyads; Caliph Muawiya is reported to have planted a colony of them in Syria specially Antioch, and Hajjaj to have established them in Kashgar. " The black-eyed and olive-complexioned Hindus were brushing their shoulders " against those of the Muslims in the cities of the Caliphate. The eastern dominions of the empire, that is, Khurasan, Afghanistan, Sistan and Baluchistan were Buddhist or Hindu before they were converted. Balkh had a large monastery (Vihara) whose superintendent (known as the Paramaka) became the famous Barmakide Vizir of the Abbaside Caliphs.

Then the Arabs familiarised themselves from early times with Indian literature and sciences. They translated Buddhist works in the second century of the Hijra, for instance, Kitab-al-Bud, and ' Bilawhar wa Budasif '; treatises on astronomy and medicine called Sindhind (Siddhant) and ' Shushrud ' (Shushrut) and Sirak (Charaka); story books like Kalilah Damnah (Panchatantra), and Kitab Sindbad, ethical books of Shanaq (Chanakya), and Bidpa (Hitopadesa) and treatises on logic and military science.

They were exceedingly keen on informing themselves of the customs, manners, sciences and religions of the people with whom they came into contact. Al-Kindi wrote a book on Indian religions, Sulaiman and Masudi collected information in their travels which they used in their writings. Al-Nadim, Al-Ashari, Al-Biruni, Shahrastani and many others

devoted chapters in their books to describe and discuss Indian religious and philosophic systems.

The legend of Buddha entered into Muslim literature as the type of the saintly man, and Muslim hagiologists assimilated the stories of Ibn Adham to the Buddhist legend. Indian ascetics travelling in pairs and staying not more than two nights at one place were directly known to the Muslim adepts, who took from them their fourfold vows—of cleanliness, purity, truth and poverty, and the use of the rosary. What wonder then that the conception of Nirvana, the discipline of the eightfold path, the practice of Yoga and the acquaintance of miraculous powers were appropriated in Islam under the names of Fana, Tariqa or Saluk, Maraqabah and Karamat or Mujiza.

Two periods may be distinguished in the history of Sufism. The first from the earliest times to the beginning of the ninth century and the second from the ninth century onwards; during the first period Sufism was merely tendencious and possessed no system ; during the second, it developed metaphysical systems and organisation of monastic orders.

The leaders of saintly life in the first period were ascetics, quietists and recluses. The name Sufi was first applied to Abu Hashim of Kufa who died in 778 A.D., and the most noted among them were Imam Jafar Sadiq (d. 765 A.D.), Hasan al Basri (d. 728 A.D.), Daud al-Tai (d. 781 A.D.), Shaqiq Balkhi (d. 810 A.D), Ibrahim ibn Adham (d. 777 A.D.), Rabia al Adawiyya (d. 753 A.D.), Habib Ajmi, Muhammad bin Wasi, Abu Hanifa Numan al-Kharraz, Fudail ibn Ayaz (d. 803 A.D.).

The chief characteristic of their belief was the submission of the human will to God. They were more seekers of piety and other-worldiness than of divine knowledge, they had an exaggerated consciousness of sin and an overwhelming dread of divine retribution, yet they had early developed

emotional and ecstatic features and they negated the externalia of religion.

Among Rabia-al-Adawiyya's sayings there are many which show emotional tendencies. For instance, "Consume with fire, O God, a (presumptuous) heart which loveth Thee."

"I reserve my heart for Thy converse (O Lord!) and leave my body to keep company with those who desire my society. My body is thus the companion of the visitor, but my dearly beloved is the companion of my heart." She is reported to have said that the love of God had so taken possession of her soul that there was no room left even for the love of the prophet, much less of hatred for the devil.

The fear of death and of the day of judgment was expressed in many ways. Rabia says,

"O my soul! how long wilt thou sleep? When wilt thou awake? Soon thou shalt sleep to rise no more, till the call shall summon thee on the day of resurrection."

Uwais Qarani speaking to Harun ibn Hayyan said, "My father died; Adam and Eve died; Noah and Abraham died; Moses, son of Amran, died; David, Caliph of God, died; Muhammad the prophet of God died; Abu Bakr his Caliph died; my brother Umar died; and my friend died .... and this is my last advice to thee, keep always before thee the Book of God and the path of the righteous, and do not for a moment allow thyself to become heedless of death."

The second period of Sufism began in the ninth century; the calm, monotheistic quietism of the first having absorbed Shiah theories and foreign notions blossomed out in surprisingly short time into full-fledged pantheistic mysticism. The Sufis of the period fall into several groups, men of similar temperaments clustering together round some pious leader. These groups eventually evolved several orders and different systems according to the differences of emphasis on

particular doctrines, details of organisation, and philosophical schemes. In this manner the early schools arose which Hujwiri has described fully. Among them were the followers of Muhasibi who has been mentioned above as a writer of Christian tendencies ; opposed to them were the Qassaris or Malamatis who pushed detachment from the world to extremes and voluntarily sought the contempt of men. The followers of Junaid of Baghdad were prudent and sober, they condemned formalism and preached a religion of sincerity, the Sahlis laid emphasis on self-mortification, Abu Said Kharraz was the first to explain the states of annihilation (fana) and subsistence (baqa), and lastly there were the extreme Sufis who held the doctrines of incarnation (hulul), commixture (imtizaj) and transmigration of spirits (naskh-i-arwah).

But the man who produced the greatest stir in the Islamic world by the boldness of his doctrines was Husain bin Mansur al Hallaj. His theories were later worked up in the systems of Ibn al Arabi and Abdul Karim Jili and in the poetry of Ibn al Faridh and Abu Said ibn Abul Khair and their influence spread to far off countries including India. Ghazali, Hujwiri and Attar attempted to reconcile him to orthodoxy.

The story of Mansoor's life is well-known. He started his career as an ordinary Sufi under the guidance of such well-known Shaikhs (preceptors) as Tushtari and Junaid. But afterwards he threw away the Sufi garments and put on worldly clothes. He began to preach as an apostle of God and offended the Jurists—for apostleship was a breach of traditions, and the government, because it savoured of Shiah legitimism. He travelled about in many lands—among them India, and thrice visited Mecca. At last his activities became so obnoxious that he was arrested. He was kept in prison for a long time, was tortured and at last executed in 922 A.D. As Kabir, Dadu, Nanak and other Indian saints used the

language of Muslim Sufism, it is necessary to briefly explain Mansur's mystical system, for his terms became the current coinage of Sufism.

Before creation, God was in His unity, holding ineffable discourse with himself and contemplating the splendour of His own essence, and this radical simplicity of His admiration is love, "which in His essence is the essence of essence," beyond all modalisations in attributes. In His perfect isolation (infirad) God was illuminated by Love, and from this illumination came the multiplicity of His attributes and names. Then in order to see his supreme joy He projected out of the pre-eternal (azal), an image of himself, that is, of of His attributes and names. This was Adam. Thus the absolute God in His divinity (lahut) became in Adam God in Humanity (nasut). Mansur conceived of the relation of God with man as the infusion of the divine into the human soul, in Hindu terms the illumination of Buddhi by Purusha. The divine spirit produces the illumination where, "I become that which I love, and that which I love becomes mine. We are two spirits, infused in one body, to see me is to see Him, to see Him is to see us." Apparently Mansur was not a thorough-going monist in spite of his declaration "I am God" (anal Haq), for according to him there was still some difference of level or potential between the Absolute and His image.

Qushairi (d. 1072) introduced into Sufi thought the idea of creation by intermediary agencies, and Ibn Sina the conception of ultimate reality as eternal beauty who saw its reflection in the universe-mirror. Thus the idea that God was both transcendent and immanent grew, and from this pantheistic view it followed that all "otherness" was mere illusion, and the feeling of separateness was due to ignorance, which could only be dissipated by knowledge. This school had three basic ideas: in the first place the ultimate reality was knowled[50] through a supre-

sensual state of consciousness, secondly, the ultimate reality was impersonal, and thirdly the ultimate reality was one.

There were many other schools of mystic speculation, but two are of special importance, those who regarded the ultimate reality as light (nur), and those who regarded it as thought. The chief exponent of the first was Shaikh Shihab ud-Din Suhrawardy (d. 1209) and of the second Ibn-al-Arabi (d. 1241) and his commentator Abdal Karim Jili (d. 1406). Shihab-ud-Din began his studies at Maragha and then migrated to Aleppo. The independence of his thought made him suspect in the eyes of the authorities. He was denounced by the Kazis and executed by the order of Saladin. He wrote a number of works on what is called Hikmat al Ishraq (illuminative philosophy). The chain of ideas links him with Plotinus, Mani, and Zoroaster. In his philosophy the ultimate principle of all existence is Light (Nur-i-qahir), whose essential nature consists in perpetual illumination. This Light is self-existent, self-manifesting, indefinable. Not-light is its negation and is necessary for its manifestation. Not-light like the Indian Maya is non-existent. Light is the source of existence. It has two kinds of illuminations, (1) the abstract, which is without form or limitation and is not an attribute of any other substance. Its essence is consciousness or knowledge. It is the principle of universal intellect and of its distant reflection the individual intellect; (2) the accidental, which has form and which is capable of becoming an attribute. It is a reflection of the abstract light and is contingent upon it.

To not-light which is the principle of absolute matter two kinds of material beings belong, (1) the obscure substance or atom which is beyond space, and (2) the forms which are necessarily in space. These two give rise to all material bodies.

From the abstract Light to material bodies the whole universe is a continuous series of circles of substance all depending on the Original Light. Those near the source receive more light than those that are distant and all strive to move towards the original fountain of Light with the intense passion and eternal attraction of Love. Thus the universe lives in and moves by Love.

The human soul is the highest dwelling place of the abstract illumination, which enters the body of man which is composed of not-light, through the medium of the animal soul which is midway between not-light and light. The human soul longs for greater and greater illumination in order to gain complete freedom from the world of form or not-light, this is realised through knowledge and action.

The human soul has five eternal and five external senses which belong to the power of light; and faculties or functions like growth, assimilation, digestion, which belong to the power of not-light. They together form the unity of the organism, they are associated with abstract illumination as the enlightened but passive Purusha is associated with the blind but active Manas. There are three constituents of the human soul (manas, aql), (1) reason or intelligence (sattva), (2) courage and ambition (rajas), and (3) lust, hunger and passion (tamas). The harmonisation of the three results in justice which is the highest virtue.

The individual soul is ever progressive. It strives unceasingly for total illumination and final absorption. Death does not end its strivings, when the material machinery which it adopts in one life is exhausted it takes up another body and rises higher and higher in different spheres of Being until it reaches its destination, which is the state of absolute annihilation (fana).

When all the souls which are journeying towards their common source have reached their goal the universe is dissolved and then another cycle of creation follows

similar to the first one, and so cycles of absorption and evolution continue.

The spiritual goal of man is enlightenment. He has to tread the path of saintship in order to attain it; on the path are stations, five of which may be distinguished. First is the stage of 'I,' feeling of personality and selfishness; second of 'Thou art not,' complete absorption in self; third of 'I am not,' a reaction of the second; fourth of 'Thou art,' complete resignation to God; and the fifth of 'I am not, and thou art not,' cosmic consciousness, annihilation of distinctions of subject and object.

Ibn-al-Arabi (d. 1241) is one of the greatest authorities on Sufi philosophy. He regarded both nature and man as the mirrors which displayed God Himself. "God manifests Himself in every atom of creation; He is revealed in every intelligible object and concealed from every intelligence except the intelligence of those who say that the universe is His form and ipseity (surah wa huwayah), inasmuch as He stands in the same relation to phenomenal objects as the spirit to the body. Regarding the relation of God and man he says, "man is the form of God and God is the spirit of man." By means of man God beholds the objects which He has created. "Man is the substance of every attribute wherewith he endows God; when he contemplates God he contemplates himself, and God contemplates Himself when He contemplates man."

Attainment of the knowledge of God was the only end of man, for complete union with Him was not possible as long as the body lasted. The knowledge is gained by faith and contemplation in which human reason divests itself of its discursive or reflective faculty. The end of knowledge is transcendental unconsciousness, where the phenomenal vanishes in the presence of the eternal.

The practical inference from this pantheism was that God could be worshipped in innumerable ways, and that

all religions contained truth. For if all things are a manifestation of the Divine substance God may be worshipped in a star or a calf or any other object, and consequently there should be complete tolerance towards all creeds. He says "every one praises what he believes, his God is his own creature, and in praising it he praises himself. Consequently he blames the beliefs of others, which he would not do if he were just, but his dislike is based on ignorance. If he knew Junaid's saying, 'the water takes its colour from the vessel containing it,' he would not interfere with the beliefs of others, but would perceive God in every form and every belief."

About a century and half later than Ibn al Arabi lived Abdul Karim Al Jili (d. 1406—17), who wrote a commentary on his predecessor's work, Futuhat al-Makkiyah and an independent treatise on Sufism called the 'Perfect Man' (Insan al Kamil). Jili does not rank in intellectual power or philosophical insight as an equal of Arabi. His treatise is full of digressions on all kinds of occult subjects and his philosophy can only be pieced together with much patient labour as has been bestowed upon it by Nicholson and Iqbal. From their accounts the following abstract of his system is drawn :

There is one being which exists in two modes, the absolute or unmanifest and the qualified or manifest. The absolute is unknowable per se, for it is beyond all relation, beyond being and not-being, a sum of contradictions. This absolute (wujud mutlaq) which is devoid of all qualities and relations exists enveloped in cecity ('ama). The first step in its manifestation is when it emerges from the darkness without becoming externally manifest, it is still free from name and attributes and is a unity comprehending diversity. The external aspect of this bare potentiality is abstract oneness (ahadiya) when being is conscious of itself as a unity. The second step is taken when the abstract unity (ahadiya)

manifests itself in two aspects of He-ness (huwiya) and I-ness (anniya). In the first or inward state the Being is conscious of itself as negativing the many (attributes), in the second or outward state as the truth of the many. The third step is that of Unity in Plurality (wahidiya), when Being identifies itself as one with itself as many. The last step brings the absolute out of darkness into light, out of the unconscious into the conscious, out of nirguna into saguna, into the sphere of Divinity with distinctive attributes embracing the whole series of existence, at last the absolute has become the subject and object of all thought, the noumenal has become the phenomenal.

The Divinity (ilahiya) is the highest manifestation of the absolute. It is a name for the sum of the individualisations of Being, for the sum of all the attributes. It is revealed in two aspects of mercy and lordship, in the first it is in relation of creator (al-haqq) to the created things (al-khalq), and in the second it is as the preserver and maintainer in their respective order of the created things.

The Divinity is known through its names and attributes. The names appertain to its essence (dhat), beauty (jamal), grandeur (jalal), and perfection (kamal). The principal attributes are life, knowledge, will, power, speech, hearing and sight.

The universe is the embodiment of the Divine idea, the objectification of the absolute. The universe is ice, God water. God is the substance (hayula) of the cosmos. The sensible world is idea, thought or dream, but not unreal, it is reality as presented to itself through and in the cosmic consciousness of the perfect man which holds all the attributes of reality together. The thing-in-itself is the collection of attributes, it is built of idea and has no other existence. In Jili's cosmological myth, the idea of ideas (haqiqat al haqaiq) existed as a white chrysolite (yaqut-al-baidha) in which dwelt God before He created the creatures. He looked at it with

the eye of perfection and it became water, and then with the eye of grandeur (jalal) and it surged into waves, and from its grosser elements seven earths were created and from its subtle elements seven heavens and from the water seven seas with their presiding angels and inhabitants.

Man in perfection is the image (nuskha) of God. He is a mirror to God reflecting His names and attributes. He is the archetype of nature, the link between God and the universe. He is the microcosm in which the absolute becomes conscious of itself in all its diverse parts. He is the unifying principle between reality and appearance, the axis (qutb) round whom the spheres of existence revolve. He is the first created spirit (ruh) in which God first manifests himself in His essence. He is the archetypal spirit of Muhammad (haqiqat al-Muhammadiyah), and one of his names is the Word of God (amr-i-Allah). Regarding this spirit (ruh) Jili says, " I (*i.e.*, spirit) am the child whose father is his son and the wine whose vine is its jar . . . I met the mothers who bore me, and I asked them in marriage, and they let me marry them. " These phrases bear curious resemblance to the Vedic cosmologies where the Aditis are spoken of as mothers as well as wives of their sons.

The first theatre of the manifestation of the spirit was Adam, then there were angels of light and darkness, and then five kinds of souls,—animal, passionate, active for good, penitent and tranquil. All souls are potentially perfect, some are actually so. Among the latter, one stands above all, namely, Muhammad. In every age there are perfect men who are an outward manifestation of the essence of Muhammad, the Logos of God.

The Absolute descends by many stages into man, in man the mystical ascent takes place by which man returns to the Divine. The process of ascent or spiritual perfection has four stages. In the first stage man completely surrenders himself to the will of God, in the second, he meditates on the

names of God and is illuminated by the splendour of the name, the individual will is destroyed. In the third stage takes place the illumination of the attributes, man participates in the divine attributes, and acquires miraculous powers, he hears the ringing of bells (silsilat-al jars), experiences the dissolution of the bodily frame, and beholds "lightning and thunder and clouds raining lights and seas surging with fire." In the fourth stage he crosses the domain of name and attribute and enters into that of Essence and becomes perfect (Insani Kamil), God-man.

Jili was an idealistic monist. For him all beliefs were thoughts about one reality, and all mode of worship expressive of some aspect of that reality. The differences were due to the variety of names and attributes and all together contributed to the perfection of the whole. Jili was acquainted with Hindu religion, for among the ten principal sects he noted the Brahima (Brahman). About them he says that they worship God in his absolute aspect, without reference to prophet or apostle. The scriptures of the Brahmina, according to him, were revealed to them not by God but by Abraham (Brahma), they contained five books, the fifth on account of its profundity was unknown to most of the Brahmans, but those who read it invariably became Moslems. Apparently Jili's fifth book is the Vedanta whose monistic philosophy in the eyes of Jili made it indistinguishable from Islam.

Theoretical Sufism had reached the highest point of its growth, the writers of subsequent times wrote text-books for students and popular treatises without adding much of original value, of these Jami's Lawaih in Persian is the best summary of Sufi philosophy and deservingly attained the widest repute. Arabic and Persian poets who became increasingly imbued with Sufism made it more than the philosophers the religion of the high and the low. Among the former Abu Said ibn Abul Khair (d. 1048) and Omar ibn al Faridh

and among the latter Hakim Sanai (d. 1150 A.D.), Farid ud-Din Attar (d. 1229-30), Jalal Uddin Rumi (d. 1273), Shabistari (d. 1317 or 1320) give the best exposition of Sufi doctrines.

Besides the philosophical and the poetical, and of equal importance with them is the practical aspect of Sufism. The practical aim of the Sufi is absorption in God. According to the orthodox (ba Shar'a) school there are three stages in the attainment of this goal. The first is the stage of good actions, the surrender of will to the commands of God, the obedience of law (shariat). As a preliminary step to the first stage the seeker (talib or salik) has to repent of his sins (taubah) and to acquire faith (iman). Then he has to carry out scrupulously all the injunctions regarding cleanliness (taharat), prayer (salat), fasting (saum), alms-giving or charity (zakat), and pilgrimage (Haj). By ascetic practises fasting, silence and solitude the evil propensities of the self (nafs), that is, ignorance, pride, envy, uncharitableness, anger and others are mortified, for it is absolutely essential that the lower self should die in order that the higher should live in God. The inward or spiritual aspect of obedience to law is designated the path (tariqat). The second stage is that of gnosis (marifat), the attainment of spiritual knowledge. In this stage logical reasoning is discarded because its inadequacy to gain the knowledge of God is realised. Intellect (aql), and demonstration (istidlal) are abandoned, and the restless soul seeks relief only in the mercy of God, for it is only by His grace (faith) and favour ('inayat) that gnosis takes place. Then the Sufi finds out that otherness is an illusion and therefore attachment to created things and fruits of good actions utterly vain. With Abul Hasan Khirqani he holds, "I do not say that paradise and hell are non-existent, but I say that they are nothing to me, because God created them both, and there is no room for any created object in the place where I am." To the

gnostic the following of law is relatively insignificant. Inward light transforms his intellect and will and he no longer stands in need of outward action ; for instance, the object of mysticism in traversing wildernesses and deserts is not the sanctuary (kaaba) itself, for to a lover of God it is unlawful to look upon His sanctuary. No ; their object is mortification in a longing that leaves them no rest, and eager dissolution in a love that has no end. Junaid pointed out how outward pilgrimage without spiritual progress was futile.

But gnosis is not enough. It must lead to the next and the highest stage, complete union with the Divinity (haqiqat), the transformation of the whole of man, will, intellect and emotions, and the attainment of the Unitive state. In this state the mystic passes away from the self (fana) and lies in essential unity with God (baqa). The illusion of subject and object vanishes, the sense of individuality dies and law and religion lose their meaning, but this is only the negative aspect of the cosmic consciousness which has a rich, positive content. The sanctified mystic comprehends both the inward and outward aspects of Reality, the one and the many, the truth and law. In the unitive state he becomes one with God, he exclaims with Mansur, " I am God " ('anal Haq).

" I am He whom I love, and He whom I love is I."

The stages by which a novice rises to union with God have many stations (maqamat) and their corresponding states (hal). The seven stations usually recognised are (1) repentence (tauba), (2) abstinence (wara), (3) renunciation (zuhd), (4) poverty (fuqr), (5) patience (sabr), (6) trust (tawakkul), (7) satisfaction (radha). The states are meditation (muraqaba), nearness to God (qurb), love (muhabbat), fear (khauf), hope (rija), longing (shauq), intimacy (uns), tranquillity (itminan), contemplation (mushahada), certainty (yaqin). The stations are self-acquired, but the states are given by God.

In the copious literature of Sufism all the stages, stations and states have been described with superabundant zest and consummate resourcefulness. The legends of saints overflow with stories, illustrating ascetic, contemplative and unitive states, and the language of poetry and symbolism has been exhausted in giving expression to all the emotions—of fear, hope, longing and love which the mystic experiences. For a student of mysticism and of varieties of religious experience no richer mine of information exists than the lives of Muslim saints and the poetry of Muslim mysticism. Sobriety and intoxication, quiet piety and frenzied love bordering on insanity, profound thinking and fantastic occultism, writhing anguish, abject humility, joyous elation and exuberant hope, there is not a note in the whole gamut of human feeling and thought which has not been touched and made to yield its rich and hidden music. All kinds of physico-psychical phenomena, the hearing of sounds and voices and seeing of visions and colours, the melting of sound into sight and of colours into music, the ravishing scents of flowers and musk and the soft touch of morning zephyrs, the trance produced by song and dance and death caused by the reciting of a line of poetry, all of them are there, offering an endless feast to the psychological gourmand hungry for esoteric facts.

The Muslim mystic who sets out upon the path of union (wasl) and of absorption (fana) always needs a spiritual guide, for "if a man has no teacher, his Imam is Satan." The guide or the precepter (pir or Shaikh) is the pivot round which the whole machinery of Sufi monachism moves. His authority is divine, for the Sufi preceptor has inherited the whole significance of the Shiah Imam. In the order to which the Sufi belongs he is sovereign. The order provides the companionship of saints which is necessary for spiritual welfare, the Shaikh regulates the conduct of the companions and watches over their spiritual progress. He is a saint who has completed the journey and reached the goal. He

has become one with God and therefore his position and status are divine. Maruf Karkhi asked his disciples to swear to God by him, and Dhul Nun asserted that a true disciple should be more obedient to his master than to God himself. Jalal Uddin Rumi spoke of his master Shams-i-Tabriz, as 'that monarch supreme who had come out from behind the door clothed in the garment of mortality.' In this way the Sufi professing to adore a universal abstraction makes individual man the object of his real worship. The disciple is advised to keep his Murshid constantly in mind, to become mentally absorbed in him through constant meditation and contemplation of him, to see him in all men and in all things and annihilate his self in the Murshid. From this state of self-absorption in the Murshid, the master leads him on through several stages at last to absorption in the Deity. Muhammad taught surrender to God (Islam), Sufism surrender to the teacher who is the representative of God upon earth.

The discipline of the seeker is dhikr, which ordinarily means remembering God and repeating His name, but which includes all the devotional practices which induce ecstasy and trance. There are two kinds of it, dhikr-i-jali or reciting aloud and dhikr-i-khafi or reciting mentally. Malcolm and Brown have described the processes. They are very similar to the meditation and the breathing exercises (pranayama) of the Indian Yoga. Shibli pointedly brings out this feature of Sufism in his definition "Tasawwuf (Sufism) is control of the faculties and observance of the breaths." In the Naqshbandi order, the Murid (disciple) closes his eyes, shuts his mouth, presses his tongue against the roof of his mouth, holds his breath and recites in his heart. The "la" goes upward, the "illaha" to the right, the whole phrase "la illaha" is formed upon the cone of the heart and through it passed to all the members of the whole frame. The breath is drawn from the navel to the breast,

from the breast to the brain, from the brain up to heavens and then again repeated stage by stage backwards and forwards.

Another method of bringing about trance is by song and dance (sama'). There has been much dispute among theologians as to the lawfulness of music and dancing regarded as religious exercises. Ghazali speaks of them as novelties which had not been received in Islam from the first followers of the Prophet, but which were therefore not forbidden. He himself approves of them for by their means the Sufis "stir up in themselves greater love towards God, and by means of music, often obtain spiritual visions and ecstasies, their heart becoming in this condition as clean as silver in the flame of a furnace, and attaining a degree of purity which could never be attained by any amount of mere outward austerities. The Sufi then becomes so keenly aware of his relationship to the spiritual world that he loses all consciousness of this world, and often falls down senseless." Hujwiri quotes traditions and the opinion of early Sufis to show that audition is lawful, and fulfils a necessary function, and although footplay (pay bazi) was bad in law and reason, the ecstatic condition "when the heart throbs with exhilaration and rapture becomes intense and the agitation of ecstasy is manifested and conventional forms are gone, that agitation is neither dancing nor footplay nor bodily indulgence but a dissolution of the soul." Jalal Uddin Rumi laid great emphasis upon music and dance, so much so that his order of the Maulavis has become known as the 'dancing Derwishes.' Both the Chishti and Suhrawardy orders included them as essential features of their dhikr. Of Shaikh Badr-ul Din (a saint settled in India in the 13th century) it is related that "in his old age when he was unable to move, the sound of a hymn would excite him to ecstasy and he would dance like a youth. When asked how it was that the Shaikh could dance notwithstanding his decrepitude, he replied, 'where is the Shaikh? It is Love that dances."

Sufism indeed was a religion of intense devotion, love was its passion, poetry, song and dance its worship and passing away in God its goal.

ALĪ MUHAMMAD KHĀN ROHELAH

OR

A History of the Foundation of the Rohelah Power in India in the Eighteenth Century

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After the assassination of Dāūd Khān in 1724 or 1725 A.D. by the orders of the Raja of Kumāyūn,[1] his associates and followers raised his adopted son 'Alī Muḥammad Khān, a young man of twenty years, to the command of a small force of the Afghans.[2] He was preferred to Maḥmūd Khān,[3] the real son of the deceased, for he had been named by the last as his heir,[4] and was intelligent, strong, and endowed with all the qualities of a commander.[5] At this stage it is necessary now, to disentangle the story of his birth and adoption, as it forms a most controversial topic in the history of the Rohelahs.

PARENTAGE AND ADOPTION :

It is rather strange, a good deal of uncertainty prevails regarding the parentage of the real founder of the Rohelah power in India. Different versions have been given by various authorities in which prejudice and partiality have large

[1] For the life of Dāūd Khān, see my Paper on "Dāūd Khān Rohilla" in the 'Journal of Indian History,' Madras. January, 1927.

[2] Gulistān-i-Raḥmat, f 11a, Rampur MS.
Gul-i-Raḥmat, p. 10, ,,
Akhbār Ḥusain, p. 14, ,,

[3] Akhbār Ḥusain, p. 14,

[4] Gul-i-Raḥmat, p. 10, ,,

[5] Bayān Wāq'aī. f 61 b. Rampur MS صاحب شعور

share. A few writers call him a Rājpūt,[1] Ahīr[2] or Jāṭ,[3] who was captured by Dāūd Khān in one of his early adventures and after conversion to Islām, adopted as a son. His genealogy is traced to the Syeds of Barhā by a later generation of writers[4]; Whereas some[5] call him the real son of Dāūd Khān. But the majority is inclined to believe that he was the son of a Jāṭ of Bakāulī, who was captured by Dāūd Khān in one of his night raids on the village in his early career.[6]

The boy was about seven or eight years old, handsome, intelligent and strong. Dāūd Khān took fancy to him and adopted him as his son, for he was childless then ; and gave him training in the profession of a warrior.

The story given in 'Imād-us-S'aādat regarding his adoption surpasses all credulity. It is uncertain about the caste of Lacchū, the alleged mother, but attaches more reliability to the tradition that she was a Jāṭ.[7] This view is further supported by the verbal tradition which was current in the nineteenth century.[8] The statement in Gulistān-i-Raḥmat, though dubbed prejudicial, is reasonable and supported by other writers ; and we may accept

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[1] Hadīqat-ul-Aqālīm, p. 139, Lucknow Ed.

[2] Seir Mutāqherin, tr. Vol. III, p. 233.

[3] Gulistān-i-Raḥmat, f 7 a.
Tārikh-i-Farrukhābād by Walī Ullah, p. 78, Rampur MS.

[4] Akhbār-ul-Ṣanādīd by Najmul-Ghanī Khān, p. 80—94.

[5] Farah Bakhsh by Shiva Prasad, p. 23, Rampur MS.
Hamilton, Rohilla Afghans., p. 35.

[6] Gul-i-Raḥmat, p. 7, Rampur MS.
'Imād-us-S'aādat by Ghulām 'Alī Khān, p. 41 ; Lucknow Ed.

[7] "ऐसे ऐसे देखो परभू के ठाट
आंवला का राजा भयो वकौली का जाट" quoted by Sir G. Forrest.

'Alī Muḥammad Khān as a Jāṭ convert who was captured by Dāūd Khān, and adopted by him.[1]

TRAINING :

Dāūd Khān had seen signs of greatness about him and so provided him the best training available which would make him a warrior. "He had him early instructed in every military exercise, and in all other accomplishments which might enable him to make an eminent and successful figure."[2] Archery, swordsmanship, use of muskets and riding mostly occupied his time. Constant company of his adoptive father gave him an insight into strategy and tactics which made him later on an efficient and successful general. Nothing, however, is known about the humaner arts, reading, writing and religious culture. Perhaps, these were not necessary for an adventurer; but judging from the usual custom of the Muslims, and the practice of the times, it may be surmised that he had received an elementary workable education. But his main training was in military

[1] The descendants of Faizullah Khān assert that the descendants of Ḥāfiz Raḥmat Khān, the writers of Gulistān-i-Raḥmat, etc., had calumniated the parentage of 'Alī Muḥammad Khān to prove their own greatness and that of the renowned Raḥmat Khān. But the account of parentage given by them can scarcely be accepted. Their point is that he was a descendant of the Syeds of Barhā who had been captured at Bakāulī by Dāūd Khān. This view has been incorporated by Najmul Ghanī in his Urdu work "Akhbār-ul-Ṣanādīd." He does not accept the statement in 'Imād-us-Ṣ'aādat, but traces the lineage of 'Alī Muḥammad genealogically to the renowned Syeds of Barhā.

I am inclined to accept his Jāṭ parentage, for it was firstly, so recognised by all the contemporary writers and, secondly, is supported by the verbal tradition. Lastly, I think, there is no discredit in being a Jāṭ convert, for many renowned Muslims were converts from Hinduism and, then 'Alī Muḥammad was brought up under the care of a genuine Afghān.

[2] Hamilton : Rohilla Afghans, p. 36.

discipline, use of arms and riding; and it was this knowledge which led the followers of Dāūd Khān to prefer him to the natural son of their leader.

HIS SERVICE IN MURĀDĀBAD:

Fear of Debī Chand, Raja of Kumāyūn, forced him to come and fall upon the support of his father's friend and patron, 'Azmatullah Khān, the governor of Murādābād.[1] He had at this time a body of four or five hundred Pathāns under his command, with which he entered the service of the imperial governor and was given some villages for his maintenance.[2] Bunea Beoli,[3] the possession of his father, was also given him and he was allowed to increase his income by farming the revenues of some adjoining villages. The Governor held him in great regard, and 'Alī Muḥammad Khān "behaved on all occasions so well and rendered so many services that he became a favourite."

Here, a constant stream of Pathān adventurers flocked to him and increased the ranks of his followers, so much so, that it was difficult for him to support them from his limited resources. His patron could give him no relief, but gave an indirect permission to increase his income and extend his possessions. Now, he began to raid the neighbouring villages, like his father. Also, he made it his custom to farm the revenues of some villages belonging to the various nobles (Jāgīrdārs) who usually lived at the court. Their effeminacy and absence gave him a fair chance of withholding the dues and subsequently appropriating the villages. This gave him some relief. He had well gauged the political situation of the country and had prepared him-

[1] Gul-i-Raḥmat. Alld. Univ. MS., p. 18.

[2] Ibid., p. 18.

[3] A village in pargana Satāsī, District Badāūn, some eight miles to the south-east of Bisauli. U. P. District Gazetteers, Vol. XV, Budaun, pp. 137, 175.

self to extend his power and become the ruler of a large tract. For this purpose he was now ready to employ both fraud and force.

THE FIRST ENGAGEMENT; HIS CONFLICT WITH KHWĀJAH ṢĀLIḤ:

Soon after, he came in conflict with the representative of Umdat-ul-mulk Amīr Khān, the paymaster of the Imperial forces. Amīr Khān had his fief in Katehar which comprised the parganās of Manaunā and Ānwlah, and included within it the villages held by 'Alī Muḥammad Khān also. Though a revenue farmer, the latter had deliberately failed to forward the dues to the proprietor. He was not alone to do so, for there were many others who were in arrears. The nobleman sent Khwājah Ṣāliḥ as his deputy to Manaunā to bring the farmers under subjection and collect the arrears. The Khwājah was a strong man but rash and irritable. He harassed the zamindārs and forced them to pay large sums to him. But 'Alī Muḥammad could not be intimidated and refused to agree to any enhancement in rent. When the Khwājah attempted "to sequester the rent of some villages to which 'Alī Muḥammad laid claim," the rupture was intensified and a struggle was imminent. The suggestion in 'Akhbār Ḥusain'[1] that 'Azmat-ullah Khān gave him indirect permission to fight with the deputy seems plausible; for court jealousies might have led him to wish the annihilation of the Khwājah.[2]

The Rohelah desired nothing more. It was decided to attack Khwājah Ṣāliḥ in the night under cover of darkness, for the result of an action in the day would have been

[1] Akhbār Ḥusain; Rampur MSS., pp. 15-16. Gul-i-Raḥmat, p. 19 also. در پردهٔ اجازت معاویت حاصل نمود

[2] 'Azmatullah Khān was the man of Qamr-ud-din Khān, the vizier, whose ill will against Amīr Khān was no secret, and so might have wished the destruction of the Khwājah in Katehar. These ntrigues and jealousies were very common in the 18th century Mughal court, and were a cause of the weakness of the Empire.

doubtful. All preparations being complete, 'Alī Muḥammad Khān rushed upon the unsuspecting enemy in the night with his Afghān followers and routed the opposing forces. The Khwājah was slain in the engagement and his followers, if they could evade death, fled in all directions. Vast booty fell into the hands of the victor, which was as usual, distributed among the soldiers; but the horses, tents and other camp equipments were reserved for the chief. This action raised him high in the estimation of his neighbours. Manaunā also fell to him and increased the extent of his possessions. But, due to the favour of 'Azmat-ullah Khān and his master, the vizier, Umdat-ul-mulk could not punish this rebellious resistance.[1]

THE OCCUPATION OF ĀNWLAH:

Now, 'Alī Muḥammad Khān wanted to round off his possessions by occupying Ānwlah, an important town, then in the possession of a powerful Rājpūt zamīndār, Dūjā. But it was no easy task; for Dūjā was reputed for his bravery and was dreaded by all his neighbours. Open force could not succeed against him, and so 'Alī Muḥammad, like an unscrupulous diplomat, resorted to secret and underhand methods to get rid of him. Murder was the next alternative and he hired a Chamār on promise of reward to commit this horrible deed. Even now, the zamindars employ such means to get rid of their enemies, and it is no wonder that 'Alī Muḥammad, never an enlightened man, resorted to it in the 18th century without blemish to his character. The Chamār was able to carry out his commission secretly at the deceased's place.[2]

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[1] Gul-i-Raḥmat, pp. 19-20.
Gulistān-i-Raḥmat, Rampur MS., f 12 a.
Akhbār Ḥusain, pp. 15-16.
Faraḥ Bakhsh. Rampur MS., p. 25.
Hamilton, pp. 41-2.

[2] Gul-i-Raḥmat, pp. 19-20. Alld. Univ. MS.
Najm-ul-Ghanī writes that the Chamār was given Rs. 200 in reward and that the deed was performed when Dūjā had gone

'Alī Muḥammad was ready and when the relations of the deceased were performing the funeral rites in the morning, he attacked the town, where after a slight encounter the relatives and followers of Dūjā fled away and left the house and town to the invader. Henceforth, Ānwlah became the chief seat of his power. The buildings raised soon after beautified the town and made it the first city in the province. The villages near about Ānwlah were annexed. 'Azmat-ullah Khān kept silent and no action was taken against him even from the court.[1]

HELP TO BANGASH NAWĀB:

In a few years[2] his power was assured and he was known as a great Rohelah chief, who kept a large army under him, and was looked upon as a protector and leader of the Indian Afghāns. Even Muḥammad Khān Bangash, the Pathān chief of Farrukhābād, sent his son to Ānwlah to get reinforcements, when he was opposed to Chhatrasāl, the Bundelā chief, and had failed to get help from the court. 'Alī Muḥammad Khān sent a small force for his assistance.[3] This is a sufficient proof of his greatness and power, even so early.

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out in a secluded place to ease himself, on the authority of an unknown work; but he too disbelieves it and thinks the above account as more reasonable. Akhbār-ul-Ṣanādīd, pp. 99-100.

[1] Gul-i-Raḥmat, pp. 19-20, Alld. Univ. MS., Gulistān-i-Raḥmat, f 12 a.

As opposed to the above, it is mentioned in *Jām-i-Jahān-numā*, Rampur MS., p. 495, that he got Ānwlah and other places on farm.

[2] Irvine has given 1730 A.D. as the date of this event in his article "Bangash Nawabs of Farrukhābād" in the J.A.S.B., 1878, p. 301.

J.A.S.B., 1878, p. 301.

DIRECT RELATIONS WITH THE VIZIER:

No such accessions to power could avail him unless he had a powerful supporter in the court, who would always protect him from royal anger and exert influence to secure him service, honour and emoluments. This he found in Qamruddīn Khān, the vizier of the empire, through the mediation of his friend and patron 'Azmatullah Khān. He sent a vakil to him and got the neighbouring parganās in revenue-farm. This gave him some status and secured the protection of the highest dignitary of the Empire. He got some villages from other fief-holders as well, and from the proceeds of his possessions lived in all splendour and greatness. His army too must have been strengthened. Gradually he had made himself an important man.[1]

Hamilton condemns this unholy alliance as a proof of the 'basest venality and corruption.'[2] These were sure signs of the weakness of the empire and its impending destruction. Lack of co-operation among the nobles and officers of State had opened the way for successful rebellion and the rise of adventurers. Rebels found advocates in the court and with their connivance increased their possessions and power. The support given by the Vizier to the enemy of the paymaster of the Empire is an eloquent proof of jealousy and faction. No wonder then that 'Alī Muḥammad Khān became famous for his power very soon.

HIS ASSISTANCE IN SUBJUGATING THE SYEDS OF BARHĀ:

A few years after came a favourable opportunity to show his devotion to the Vizier. Imperial troops were sent under the command of 'Azīm-ullah Khān, brother of the Vizier, to chastise Saif-ul-dīn Khān, the leader of the Syeds of Barhā. He was the brother of the famous 'Syed brothers,' the ministers of Farrukhsiyar, and had lived aloof

[1] Gul-i-Raḥmat, p. 20, Alld. Univ. MS.

[2] Hamilton, Rohilla Afghans, p. 43.

from the court after their death, at Jānsath in the parganā of Sahāranpur. He had not been on cordial terms with Muḥammad Shāh and perhaps had never attended the court. He had in 1737 A.D. opposed the royal officer and killed him.[1] The Vizier could not tolerate this rebellious resistance and ordered his brother to punish him. 'Alī Muḥammad Khān also was ordered to join with his followers and help the imperialists. This huge army proceeded to Jānsath[2] and was met by the Syeds assembled to defend their leader. A hard contest ensued in which the royal forces did not fare well. They could not stand before the onslaught of the Syeds and had almost dispersed when the Rohelahs, who had as yet kept outside the field, rushed in great numbers with their muskets and forced the Syeds back. Saif-ul-dīn Khān was killed by 'Alī Muḥammad Khān and his followers were routed. Victory crowned the imperialists and 'Alī Muḥammad became famous for his bravery and generalship. The town of Jānsath was sacked and the power of the Syeds broken for ever.[3]

The Vizier was highly impressed by his services and procured him the title of 'Nawab' and the right to keep

[1] Tārīkh-i-Muzaffarī, Alld. Univ. MS., p. 367.
He killed Ḥashmat Khān, faujdār of Sahāranpur.

[2] A town in Muzaffarnagar district—District Gazetteers, U. P., Vol. 3, Muzaffarnagar, p. 254.

[3] Gul-i-Raḥmat, pp. 20—22.
Gulistān-i-Raḥmat, f 13a.
Akhbār Ḥusain, pp. 17-18.
Tārīkh-i-Muzaffarī, p. 367.
Farah Bakhsh, p. 27.
Tārikh 'Āālī by Muḥammad Ṣāliḥ, Patna MS., f 86.
The name of 'Alī Muḥammad Khān is not mentioned in the last though there is no difference in the general account. This history gives the date as 18 years after the death of Ḥusain 'Alī Khān, which comes roughly to 1737 A.D.
Seir Mutāqherin, Tr., Vol. I, pp. 297-8.

standard and drums. He was decorated with a military rank (mansab) the nature of which is not exactly known. Some substantial rewards were also secured, for some villages of the khālsā land were given by the Emperor and the Vizier 'gave him from himself the command over some districts of his jāgīr of Murādābād.'[1]

No mention is made of this grant of manṣab in the regular official chronicles of the reign of Muḥammad Shāh and so it is difficult to know its quality exactly. Perhaps it was not very high in rank, which we should not expect in view of the nature of the service. It was only the revolt of a zamīndār and then 'Alī Muḥammad Khān was but a subordinate auxiliary of 'Azīm-ullah Khān. But nevertheless the grant of the nawabship and a manṣab gave him legal title in the state. He was no more an adventurer but a servant of the empire, a member of the state hierarchy of officers.

MIGRATION OF MORE ROHELAHS : COMING OF ḤĀFIZ RAHMAT KHĀN :

After the sack of Jānsath his power was further increased. The successor of 'Azmat-ullah Khān, who was dead now, left him in the possession of all his lands.[2] He had no opposition to fear from any quarter. Bands of adventurous Rohelahs migrated from their home to take service under him. The persecutions of Nādir Shāh in Afghānistān increased their number all the more. "Those men," writes the author of Seir Mutāqherin, "whom the severities of Nādir Shāh had driven from their homes, and who were

[1] Gul-i-Raḥmat, p 21.
Gulistān-i-Raḥmat, f 13 b.
Akhbār Ḥusain, pp. 17-18.
Seir Mutaqherin, Tr. Vol. III, p. 233.
Tārīkh-i-Muzaffari and other general histories of the reign do not mention any such grant.

[2] Gul-i-Raḥmat, p. 21.

floating at random upon the ocean of incertitude and despair, were glad to hear of a place of refuge and shelter, and they resorted in shoals to a man who had already acquired so much renown under the name of Rohilla, which was that of one of their clans."[1] Thus in a very short time his army grew in numbers and included some brave soldiers.

One of the most important arrivals was that of Hāfiz Raḥmat Khān. He settled in Katehar about this time and was given twelve villages for his maintenance.[2] 'Alī Muḥammad Khān had sent him many invitations, and it seems he had come here previously as well in connection with his commercial rambles. But his final migration synchronised with the severities of Nādir Shāh in Roh and may have been due to it.[3] The Hāfiz assumed great importance and took a leading part in all the future transactions of his career, and after his death became the real ruler of Katehar.

INVASION OF NĀDIR SHĀH :—

Shortly afterwards, Nādir Shāh invaded India and forced Muḥammad Shāh to yield to his superior adversary the horded treasures of many generations. The provinces beyond the Indus were annexed to the Persian Empire. The prestige of the Mughal emperor was shaken. The centrifugal forces were active and distant provinces shook off the imperial yoke. Central Government had neither the resources nor the will to bring them back to allegiance. 'Alī Muḥammad Khān, also, noted this weakness and being well aware of the supineness of the Vizier neglected sending the usual remittances to the Exchequer.[4] His real intention of assuming independence in Katehar is visible at this stage, and his future actions confirm the view.

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[1] Seir Mutāqherin, Vol. III, p. 234.
[2] Gul-i-Raḥmat, p. 24.
[3] Ibid., pp. 22—24.
[4] Seir Mutāqherin, Vol. III, p. 234.

CONFLICT WITH RAJA HARNAND:[1]

Neglect in sending the revenues, added to the repeated complaints of the zamīndārs and fief-holders regarding his high-handedness, dispelled the confidence of the Vizier.[2] He could now pierce through the schemes of the Rohelah and saw in his moves a desire for independence. External pressure and fear of incurring the displeasure of the Emperor forced him to demand an explanation. He wrote a very simple letter demanding his presence at the capital, for "certain cases have come up before His Majesty, and so you may come and settle them." On the receipt of the letter, 'Alī Muḥammad Khān called a meeting of all his officers and advisors. It was decided that Jai Sukh Rāi, the Dīwān, be sent to the Vizier, as it would not be proper for the chief to go there. Some excuses were to be made to the Vizier regarding his non-compliance.[3] The Dīwān left Murādābād on 31st October, 1741, and presented himself before the Vizier on 15th November, 1741, the day he reached Delhi.

By his adroitness he lulled the suspicions of the Vizier and was able to arrange a settlement favourable to his master. Raja Harnand, who was appointed the deputy governor of Murādābād just then, demanded an immediate payment

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For the invasion of Nādir Shāh, see an anonymous contemporary account under the name of *Tārīkh Āmdan Nādir Shāh* preserved in the Rāmpur State Library. Also *Tārīkh-i-Muzaffarī*, 'Khulāṣah-ut-tawārīkh' by Kalyān Singh, and other general histories of the reign of Muḥammad Shāh.

[1] The story of this war has been taken from a contemporary anonymous work, *Wāqi'āt jang darmiyān 'Alī Muḥammad Khān wa Harnand* written as notes for a bigger work by a gentleman of Ānwlah on 26 Shawwāl year 26 of the reign of Muḥammad Shāh. It is preserved in Rampur State Library. The work is quite reliable and most of its statements are corroborated by the other authorities on the subject.

[2] Gul-i-Raḥmat MS., p. 25.

[3] Anonymous Paper, p. 2.

of the tribute; but the Vizier accepted the excuses of Jai Sukh Rāi and permitted him to clear off all the dues when he reached Murādābād. Jai Sukh Rāi was allowed to return and was dismissed with many presents by the Vizier.[1]

Harnand was chagrined at this, and sought for the destruction of the Dīwān. He sent an army under his assistant Sanwakh Rāi to intercept the Dīwān and destroy him before he reached Katehar. Sanwakh Rāi took his station on the way near Hāpur[2] and posted strong contingents at all the ferries on the Ganges, from Garh Muktesar[3] to Kol Sikandarā,[4] leading to Katehar. Jai Sukh Rāi heard of this obstruction and changed his route, but there too, Sanwakh Rāi was in the way. Fight was quite imminent when Sāḥib Rāi, the Faujdār of Meerut, interfered and persuaded Sanwakh Rāi to clear the way. Jai Sukh Rāi reached Ānwlah on 10th January, 1742, after settling the accounts at Murādābād with Neāz Beg Khān, the deputy of Harnand.[5]

Rājā Harnand had been ostensibly appointed as deputy-governor of Murādābād to keep an eye on 'Alī Muḥammad Khān and check his excesses.[6] He wanted to root out the Rohelah power and earn merit and reward for himself. It was for this that he opposed the amicable settlement in Delhi. Being unsuccessful there he came to Murādābād, and made all preparations for a struggle. There he gathered a large army by calling all the zamindars and loyal flatterers. He secured the permission of the Vizier for the conflict by sending him constant complaints against 'Alī Muḥammad

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[1] Anonymous Paper, pp. 37—39.

[2] Gazetteer, N.-W. P., Vol. III, pt. II, p. 381.

[3] Ibid., p. 373.

[4] The place could not be traced in the Gazetteer.

[5] Anonymous Paper, pp. 40-41.

[6] Gul-i-Raḥmat MS., p. 25.

Seir Mutāqherin has as the mission "to subdue the Rohillah and all the refractory zamindārs of those parts." Vol. III, p. 234.

Khān. The royal park of artillery and the services of Munīr-ud-daulah, son of the Vizier, were permitted for this expedition. All preparations were complete for the suppression of the Rohelahs.[1]

But what was the cause of this declaration of hostilities when a settlement had been made only a short time before? The argument that it was the jealousy of Harnand against Jai Sukh Rāi which led to it, has no force. The statement of Hamilton, based on Faraḥ Bakhsh, that 'Alī Muḥammad Khān's neglect to interview Harnand for which he was invited, and the avoidance of the demand for quit-rent, led to this war[2] is not corroborated by other authorities, which are clear on the point that many advances were made for peace and the tribute was paid.[3] It is written in Seir Mutāqherin that Harnand was very proud of his position and issued insulting orders and demanded exorbitant rents. 'Alī Muḥammad Khān wanted an abatement, which being refused, he marched to oppose the Rājā.[4] But from the chronology mentioned in the anonymous manuscript, it is clear that Rājā Harnand took the offensive. It is mentioned in Gul-i-Raḥmat that he was appointed by Muḥammad Shāh to punish the Rohelah.[5] It is not strange that the Emperor may have given him instructions to chastise 'Alī Muḥammad, as the nobles in the court who had their fiefs in Katehar clamoured for his suppression. The Vizier did not want his destruction and so invited him to settle the annual quit-rent in his presence. Jai Sukh Rāi was able to get favourable terms for his master to the great chagrin of Harnand. The latter came to Murādābād and sent reports regarding the power

[1] Anonymous Paper MS., pp. 42-43.

[2] Hamilton, p. 49.

[3] Gul-i-Raḥmat, p. 26; J.A.S.B, 1878, p. 334; Jām-i-Jahān-numā MS., p. 495.

[4] Seir Mutāqherin, Vol. III, p. 235.

[5] Gul-i-Raḥmat MS., p. 25. بجهت تاديب علي محمد خاں

and prestige of 'Alī Muḥammad. In those days he was increasing his army and had collected a large force. Harnand represented the situation to his master and sent an account of the grievances of the zamindars and fief-holders. The Vizier was enraged at this, and under pressure of his deputy and other nobles of the court gave permission for the destruction of the Rohelah.

It seems 'Alī Muḥammad Khān did not want a war so soon and wanted a compromise. He appealed to Muḥammad Khān Bangash to intercede on his behalf. The latter requested both the Vizier and Harnand for a settlement which was not granted.[1] Rājā Harnand was deaf to all proposals and quite determined on a struggle. In the end 'Alī Muḥammad Khān was ready to meet force by force and rallied his forces to resist the imperialist aggression. This action was due to the rash uncompromising attitude of Harnand and was prompted by his ambition to attain distinction by subduing a powerful chief, who was a rebel, all but in name.

Harnand called to his assistance all the zamindars of the neighbourhood and 'Abdul Nabī Khān, the faujdār of Barēlī. With an army numbering about twenty-five thousand men, both horse and foot, he encamped at Dāl 'Amlah on the river Arail waiting for the enemy. 'Alī Muḥammad Khān left Ānwlah on 8th March, 1742, and took his position near the enemy. His forces did not exceed ten or twelve thousand men,[2] ill-provided with artillery. But deficiency in the materials of war was more than compensated by the determination of the soldiery to die for their leader and the superiority of generalship. A few days passed in fruitless negotiations for peace which gave greater confidence to the Rājā. Finally on 15th March, 1742, 'Alī Muḥammad Khān marched to attack the enemy with his valiant assistants Ḥāfiz Raḥmat Khān, Dūndī Khān, Pāindah Khān and others, all in command of the

[1] J. A. S. B., 1878, pp. 334-5.

[2] Gul-i-Raḥmat, Rampur MS., p. 16; Allahabad MS., p. 26.

different wings. The Rājā was caught unawares; for he was assured by the Brāhmaṇas that the day was not auspicious for battle, and so was busy in his devotions. He could not get ready before the enemy was before his tent. He got up on an elephant and was killed there by an arrow shot. His son Motī Lāl met a similar fate and the army was routed. The last to succumb was 'Abdul Nabī Khān. 'Alī Muḥammad Khān was the master of the field. Vast booty fell to him,—many pieces of artillery, tents and other camp-equipage.[1]

RECONCILIATION WITH THE VIZIER :

The Rohelah power was fully 'established by a victory equally great and easy, and his force was recruited by the addition of a treasure in money and a great train of artillery.' This acquisition to his strength made his power really dreadful. He was not an ordinary landholder who could be trifled with. Defeat of the imperial army raised his reputation and he was sure to get the support of the neighbouring chiefs. The Vizier had sent his son to assist Rājā Harnand, but hasty rashness of the latter did not wait for reinforcement. Mīr Munīr-ud-daulah was still beyond the Ganges; but he had not the courage to attack the rebel single-handed. The Vizier, too, could not afford a further depreciation of the imperial prestige. But something had to be done. So he sent his son 'to demand satisfaction for the injury which the imperial

[1] Anonymous Paper MS., pp. 43—47.
Gul-i-Raḥmat, pp. 26—28.
Gulistān-i-Raḥmat MS., ff. 17-18.
Akhbār Ḥusain MS., p. 18.
Farah Bakhsh MS., pp. 28—31.
Jām-i-Jahānnumā, p. 495.
Seir Mutāqherin, Vol. III, pp. 234—6.
Seir Mutāqherin and Jām-i-Jahānnumā show that Harnand was killed in his own tent while worshipping—Gul-i-Raḥmat and Gulistān-i-Raḥmat have the statement, and it is corroborated by the anonymous MS., that Harnand was killed with an arrow while on the back of his elephant.

authority had sustained in the discomfiture of the Faujdār.' War again was impossible; so 'Alī Muḥammad also fell to negotiations. The two met on a platform built for the purpose in the middle of the stream, and Munīr-ud-daulah felt satisfied by the explanation given by the victorious rebel.[1] He was pardoned. After a mutual exchange of presents and assurance by the Rohelah for loyalty and service, both returned to their places. The Vizier was again pleased and left the whole province of Katehar to be governed independently by 'Alī Muḥammad Khān.[2]

FURTHER EXTENSION OF TERRITORY:

The victory on the battle-field was but the beginning of greater success all round. When matters were compromised with the Vizier, 'Alī Muḥammad sent his officers with large armies to annex the neighbouring districts. The old āmils (revenue officers) of Murādābād, Sambhal, and Shāhjahānpur were expelled, and he appointed his own men instead. Barelī proper was left unoccupied, perhaps to avoid giving affront to the imperial authority.[3]

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[1] Hamilton writes 'Alī Muḥammad gave his daughter in marriage to Munīr-ud-daulah, Rohilla Afghans, p. 52; but Ghulām Ḥusain (Seir Mutāqherin, Vol. III, p. 236), is uncertain about it, for nothing was heard of it later on. All other works shed no light on this subject. Nevertheless, it is certain that the alliance with the Vizier was very close and henceforth, he defended the Rohelah always.

[2] Seir Mutāqherin, Vol. III, p. 236.

It is written in this work that Begum Sholāpurī was sent for the purpose by the Vizier and Mīr-Mannū his son was associated with her.

Anonymous MS, Ibid., p. 48.

Akhbār Ḥusain, p. 19.

Hamilton, p. 52.

[3] Gul-i-Raḥmat, MS., p. 28.

CONQUEST OF PĪLĪBHĪT:

A bolder enterprise was soon chalked out. Pāindah Khān was sent with a large force to conquer the tarāī lands, and extend the Rohelah power to the Himālayas. Despat was the ruler of Pīlībhīt, and was the leader of the Banjārah tribe. He was a strong chief and was the leader of the whole confederacy of the Banjārahs extending from Pīlībhīt to Gorakhpur, at the feet of the mountains. Pāindah Khān overpowered him and occupied Pīlībhīt and the neighbouring lands. This all was given to Ḥāfiz Raḥmat Khān in fief.

Many other landlords met a similar fate, and their possessions were brought under the rule of the rising Rohelah chief. But his zeal did not stop here. Islāmic passion in him asserted itself and he applied himself with all the enthusiasm of a convert to demolish all traces of Hindu rule. Temples were broken and mosques built instead. The author of Jām-i-Jahān-numā, like a staunch Muslim, praises the iconoclastic spirit of the Rohelah. He writes that Islāmic custom was made current and Muslim law was applied in the courts. Namāz (the Muslim prayer) was made popular, and taxation was regulated according to Qurān. Colleges and monasteries were established. Theologians and scholars were encouraged, who flocked to his court from all quarters. In short, he turned the land into a garden and made Muslims prosperous.[1]

The state was calculated in every way to promote the happiness of the Muslims. But from the above statement, we cannot infer the same regarding the fate of the Hindus, who must have looked with dismay at the growing power of the Rohelahs for it meant political subjection and religious degradation to them.[2]

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[1] Jām-i-Jahān-numā, MS., p. 495.

[2] At this time and again after his return from Sirhind a few years later, 'Alī Muḥammad Khān expelled all the Hindu land-

THE ROHELAH INVASION OF KUMĀYŪN.

In this way, two years[1] passed after the defeat of Rājā Harnand, in extending the limits of his dominions and placing the government on a sound footing. The extension was complete on the eastern side and it touched the boundaries of Avadh. But, on the northern side, he could not yet secure the natural hill-frontiers as the tarāī lands were still in the possession of the Rājā of Kumāyūn. Desire to bring these lands under control and thus round off his territories must have been immense; but the time was not yet ripe for such an engagement. The power and prestige of the ruler of Almorah were widely reputed and the Rohelahs could not, without a thorough preparation, hazard a struggle with him. The interregnum was well utilised, and when an opportunity offered itself, 'Alī Muḥammad Khān was quick to profit by it.

Some time in 1743, one Dulī Chand, a state official in the service of the Rājā of Kumāyūn, sought shelter at Ānwlah from the persecutions of Rājā Kalyān Chand, who had taken out his eyes and had cut off his ears, and begged assistance from 'Alī Muḥammad Khān in an invasion of Kumāyūn to avenge the insult.[2] The invitation was too tempting; and 'Alī Muḥammad saw in it both an opportunity to avenge the blood of his adoptive father[3] and the chance to annex the tarāī lands.

holders and drove them out beyond the Ganges.—Farah Bakhsh, p. 43. The Hindus were not allowed to hold any independent status in Katehar; they could be the subjects or officers and servants of the Muslim State. Those who were engaged in agriculture were the sub-tenants of the Muslim fief holders or the labourers and serfs of the Muslim cultivators.

[1] Gul-i-Raḥmat MS., p. 29.
Gulistān-i-Raḥmat MS., f 19a.

[2] Gul-i-Raḥmat MS., p. 29.
Gazetteer, N.-W. P., Vol. XI, p. 585.

[3] See my Paper on 'Dāūd Khān Rohelah' in 'Journal of Indian History,' Madras, January, 1927., for the death of Dāūd Khān.

He got a large army in readiness and appointed Ḥāfiz Raḥmat Khān the leader of this expedition. Other valiant assistants as Dūndī Khān, Pāindah Khān and Bakhshī Sardār Khān were associated with him. Dulī Chand was taken along with the army which marched to Rudrapur[1] an outpost of the kingdom of Almorah on the plains.

When the Rājā heard of this unexpected invasion he was justly frightened, and 'feeling that his cruelty and tyrannical conduct had created many enemies tried to reform his administration.' He summoned his best officers and appointed them to command the most strategical passes leading from the plains to the capital. Meanwhile, Ḥāfiz Raḥmat Khān had occupied Rudrapur and established his own outpost there. Thence he marched against the fort of *Dukharī*[2] and occupied it with ease. Now, as they had reached the foot of the hills, they left their horses and began the ascent on foot. The Rājā's men had blocked all the passes to obstruct the uphill march. But the Rohelahs, being hardy mountaineers and well adept in the art of fighting in hilly regions, cared little for this opposition and, undaunted, marched in the direction of Almorah. They had to meet with strenuous opposition at every pass and obstruction at every turn. The fighting was hard, but waving aside all impediments they reached Almorah. The city was invested and the siege was pushed on with vigour. The Rājā was unnerved by the dauntless courage and bravery of the Rohelahs, and considered flight as the better part of valour. He left the palace with all his dependants and followers in the dark of the night and took the way to Garhwāl leaving the city a prey to the cupidity of the

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[1] Gazetteer, N.-W. P., Vol. XI, p. 586.

Rudrapur is a town in Nainital district, U. P. Distt. Gazetteer, Vol. XXXIV, p. 324.

[2] Called Barakheri in the Gazetteer. Ibid., p. 586.

Rohelahs. Early in the morning this news reached Ḥāfiz Raḥmat Khān, who entered the city without serious opposition.

The city fell to the victors. The fort, the treasury and the palace were occupied with ease. The town was plundered. Rohelah soldiers rushed in all directions to spill the blood of the vanquished. Flushed up with iconoclastic zeal, they rejoiced in destroying the temples and the idols of the Hindus.[1] Ḥāfiz Raḥmat Khān entered the palace and there recited the prayers and offered thanks to the Almighty. Then he sent the happy news to ʿAlī Muḥammad Khān, then at Ānwlah. His joy was immense at this easy success. Four months after (the rainy season over) he went to Almorah where he distributed gifts and awarded robes of honour to Ḥāfiz Raḥmat Khān and all other officers according to their services.

Shortly after news was brought that Kalyān Chand had secured the assistance of the Rājā of Garhwāl, and that the allied forces were marching against Almorah with all expedition. ʿAlī Muḥammad Khān was least perturbed by this information and advanced to meet the enemy half-way. This promptness of the Rohelah chief made the Rājā nervous. Even without an engagement he left the field and fled to Garhwāl with his ally and all the forces. The camp was plundered by the Rohelahs who acquired much booty. ʿAlī Muḥammad Khān followed the fugitives and wanted to conquer Srīnagar, the capital of Garhwāl, as well. The Rājā of that place was greatly frightened and being apprehensive of his own safety, sent envoys professing submission. Negotiations for peace were begun. The Rājā promised to owe allegiance to him and so was pardoned on the payment of one lac and sixty thousand rupees as tribute. The Rohelahs returned to Almorah, but owing to the excessive cold

[1] Gazetteer of N.-W. P., Vol. XI, p. 587.

of the place they could not stay there more than four months. The kingdom was then handed over to one of the officers of Kalyān Chand, but the tarāī lands were annexed to Rohelkhand.[1]

This expedition has been eulogised as the first successful Muslim invasion of Kumāyūn by the Afghān historians. It was a thorough victory for 'Alī Muḥammad Khān and raised him high in the estimation of the people. Now he was no longer a small chief, but a conqueror who was to be feared by his neighbours. He had rounded off his territories and was master of the entire land north of the Ganges. But the chief effect of this enterprise was that it converged the attention of all to this state and compelled the luxurious Mughal emperor to reduce it to its normal limits.

MUHAMMAD SHĀH'S INVASION OF ROHELKHAND :

'Abd-al-Manṣūr Khan Ṣafdar Jang, the governor of Avadh, was frightened by this fortunate victory of his neighbour He grew suspicious of the Rohelah, for he thought, it would not be long before 'Alī Muḥammad Khān, in the flush of victory, would lead the hardy Afghāns against his own territories, as his ambition would not be gratified before he was master of all the territories north of the Ganges. The existence of an unfriendly power to his north-west gave him no peace, and he began to plot its annihilation. His forces not being adequate, he instigated

[1] I had to rely for this story of the expedition only on the Persian chronicles dealing with Rohelah history and the meagre account in the Gazetteer, N.-W.P., Vol. XI, pp. 584—8, as no authoritative history of Kumāyūn is known or was available to me.

Gul-i-Raḥmat, pp. 29—32.
Gulistān-i-Raḥmat MS., f 21.
Farah Bakhsh MS., pp. 32-33.
Akhbār Ḥusain MS., p 21.
Bayān Wāq'aī, f 61 b.
Hamilton, pp. 54—57.

the Emperor to chastise 'Alī Muḥammad Khān. Muḥamamd Shāh had also been watching the late activities of the Rohelah, and so, finding in the request of Ṣafdarjang a good opportunity of rooting out rebellion from the vicinity of the capital, adopted his suggestion and made preparations for an invasion of Katehar.

The cause of Ṣafdarjang's enmity has been variously described by the chroniclers of the period. The author of Bayān Wāqa'ī, a contemporary work, writes that the expedition was undertaken at the instigation (ترغیب ، تحریك) of Ṣafdarjang, and clearly notes that Ṣafdarjang for fear of his own territory persuaded Muḥammad Shāh to attack him ('Alī Muḥammad). It is clear from this work that the invasion of Almorah had given him cause to fear and hence he appealed to the Emperor.[1] There are some others who attribute no cause for the instigation by Ṣafdarjang.[2] But Hamilton, on the basis of Farah Bakhsh, gives a story about the immediate rupture between the two. "Some of the Afghan chief's retainers," writes he, "had a dispute with the servants of Ṣafdarjang, Subadar of Oude, who had been sent by their master to cut saal timbers, which abound in the forests at the back of Kuttahar—this produced an affray, in which several were killed on both sides; and the gumashta (or agent) who commanded Ṣafdarjang's people, was obliged to fly, leaving behind all his effects, which, according to their usual custom, was seized as lawful spoil by the Rohillas."[3] The agent went to Avadh and complained to the Nawāb of the treatment of the

[1] Bayān Wāqa'i by Mirzā Maḥmūd Khān, written in 1750 or 51 A.D. Rampur State Library MS., f 61b.

[2] Gul-i-Raḥmat, Gulistān-i-Raḥmat and Akhbār Ḥusain.

[3] Hamilton, p 58. He also notes the desire of Ṣafdarjang to annex Katehar as the cause of this instigation and the consequent expedition. If we accept him then the Rohelah War of 1774 is but a delayed episode long overdue.

Pathāns. Ṣafdarjang at once went to the Emperor and requested him to march against 'Alī Muḥammad. This statement, though not corroborated by any other authority, is yet quite probable.

Nawāb Ṣafdarjang was not only jealous of the power of 'Alī Muḥammad Khān, but was also anxious to annex Katehar to his possessions. On the other side, the Emperor had every cause to be dissatisfied with the conduct of the Rohelah, who had after the rout of Rājā Harnand "become so proud as to make no account of the court."[1] The invasion of Kumāyūn also had been undertaken without the imperial permission: and this act was in itself alone sufficient to dub him a rebel and draw upon him the imperial wrath. He had, besides, neglected to send its information to the court and had not remitted the vast booty falling to his lot, though it was both by custom and law the property of the emperor. Then, as is mentioned in Ma'aṣir-ul-Umrah, he had got prepared for his own use tents of red colour, such as were used by the emperor only.[2] This deliberate neglect of the established custom was an evident proof of his rebellious designs. No wonder, then, that the persuasions of Ṣafdarjang had an immediate effect and the emperor wholeheartedly adopted his advice.

The invasion was undertaken at a time when the government was very weak and the treasury was empty. Even Muḥammad Shāh was roused from his usual lethargy and stupor. It is an evident proof that 'Alī Muḥammad Khān had become a great danger to the state. The rise of such a powerful and successful adventurer, who could afford to send fifteen thousand men on a difficult expedition[3] so near the capital was prejudicial to the interests of the tottering Mughal empire. It might have been suspected that the

[1] Seir Mutāqherin, Vol. III, p. 236.
[2] Ma'aṣir-ul-Umrah. Bibliotheca Indica, Vol. II, p. 842.
[3] Expedition against Kumāyūn, ante p. 53.

Rohelahs would join their compatriots, the Bangash Afghāns of Farrukhābād, and form a solid block in the vicinity of the capital, and might under an efficient commander bid for the imperial throne. Or else, they might bring Avadh under their sway and found a powerful Afghān dominion in that part of the country, a rival to the supremacy of Delhi. Such considerations must have influenced Muḥammad Shāh, who now determined to go in person to chastise a dangerous rebel.[1]

A strong army was recruited and influential chiefs like Ṣafdarjang, Amīr Khān and the Vizier were asked to accompany. The army left Delhī on 11th February, 1745, under the personal command of the emperor. Ānand Rām Mukhlis[2] has given a very elaborate account of the army and its march in his excellent work. He mentions that on the way Qāim Khān joined the imperial forces, and a few days after his arrival attempts were made to bring about a peaceful settlement of the whole affair. The representatives of 'Alī Muḥammad Khān were called, but the imperial demands were so exorbitant that no agreement could be concluded. For a pardon the emperor wanted a crore and half of rupees and the cession of all his possessions and artillery. The advance was continued and the fort of Bangarh was besieged for 'Alī Muḥammad Khān had garrisoned it and had decided to stand a siege.

'Alī Muḥammad Khān had been very uneasy all this time. He had decided to leave Katehar and take refuge in Kumā-

[1] Khulāṣah-ut-Tawārīkh by Kalyān Singh, Allahabad University MS., p. 99.

The author gives the cause as being the " unfurling of the banner of rebellion in Sambhal and Murādābād by 'Alī Muḥammad Khān."

[2] Safarnāmah Bangarh by Ānand Rām Mukhlis. Rampur MSS.

The account of this expedition is derived from this work, for it is a contemporary work, written by one who was present on the scene.

yūn, which had been very lately subdued. But Qāim Khān advised him to remain in Ānwlah and meet the royal forces with all courage and equanimity, for otherwise it 'would infallibly prove the loss of the country.'[1] He wrote to his friends that it was not his 'intention to offer any resistance to the mandates of the king' and entreated that he might be admitted to the royal presence. But owing to Ṣafdarjang's opposition, 'all the exertions of the Vizier on his behalf were insufficient to obtain for him the honour of an audience.' In his own camp too, his ranks were thinned. Certain proclamations (ﺷﺎﻫﻲ) had been issued by the theologians forbidding the Musalmāns from fighting the emperor.[2] All this compelled him to take refuge in Bangarh,[3] a mud fortress in the heart of a thick forest, well suited for a siege.

The Mughal army encamped outside the forest at a little distance from the fortress. Every morning the imperialists began a half-hearted cannonade. The Afghāns returned the fire with great vigour and made it difficult for the enemy to approach the fortifications. Some night sallies too were attempted but with no success. After all these unfruitful skirmishes the Rohelahs kept behind the walls. The imperialists could not storm the fort owing to their dilatoriness. Excessive heat of the day, luxuriousness of the officers, disunion among the chiefs, and the jealousy between Ṣafdarjang and Qamruddīn Khān—all united to save the fortress from destruction. Mukhlis very vividly describes the condition of the Mughal nobles and remarks that besides Ṣafdarjang all were ready to make an accommodation with 'Alī Muḥammad Khān. Vizier was shocked at the distinctions

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[1] Gul-i-Raḥmat MS., pp. 33-4.
Akhbār Ḥusain, p. 22. (Vizier and Qāim Khān both encouraged him).

[2] Mukhlis, Safarnāmah MS., p. 35.
Akhbār-ul-Ṣanādīd by Najm-ul-Ghani, p. 153.

[3] Near Badāūn. U. P. District Gazetteer, Vol. XIII, p 157.

heaped on Rājā Nawal Rāi, the deputy of Ṣafdarjang, who had come from Avadh to join the army, and was secretly encouraging the Rohelah to stand his ground.[1]

'Alī Muḥammad was apprehensive lest the supplies should fail and the garrison be starved. So he resolved to finish the struggle and submit to the emperor. He sent an application; and the negotiations for peace were entrusted to the Vizier, who persuaded the emperor to grant him a pardon on the cession of all the possessions. 'Alī Muḥammad made all preparations to surrender to the emperor and requested the Vizier to send a man to take charge of all property. On the arrival of Chālis Khān as the imperial officer, he left the fort and presented himself before the Vizier, who took him in the afternoon to the emperor's camp, which had been well decorated for the purpose.[2] When the court was in full swing, Muḥammad Shāh ordered 'Alī Muḥammad Khān to be brought in. The emperor set his hands free which were tied by a kerchief, a token of submission, and left him in the guard of the Vizier.[3] The fort was thereafter occupied by royal officers and all property therein was taken possession of. The fortifications were dismantled. When all this had been done, the royal camp began its return journey with 'Alī Muḥammad Khan as a prisoner, and reached the capital on 20th June, 1745.[4]

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[1] Mukhlis, Safarnāmah, pp. 66—78.

[2] Ibid., pp. 78-79

[3] Ibid., p. 83.

[4] Khulāṣah-ul-Tawārikh MS., p. 99.
Gul-i-Raḥmat, pp. 33—5.
Gulistān-i-Raḥmat, ff 21-22.
Akhbār Ḥusain, pp. 22-3.
Seir Mutāqherīn, Vol. III, pp. 237-8.
Tārikh-Muzaffarī MS., pp. 444—6.
Bayān Wāq'ai MS., ff 61-62.
Farah Bakhsh MS., pp. 33—9.
Jām-i-Jahān-numā MS., p. 496.

The province of Katehar was left in the charge of Farīd-ud-din Khān, son of 'Azmat-ullah Khān, with the head-quarters at Murādābād. Hidāit 'Alī was given the command over Barelī. The family of 'Alī Muḥammad was taken to Delhi. Ḥāfiz Rāḥmat Khān went over to Maū to live there. This defeat eclipsed the Rohelah power for a short period and dispersed the entire force in all directions. The Rohelahs were living a life of inactivity in Katehar awaiting a better turn in their fortunes.[1]

FAUJDARI OF SIRHIND :

Not long after, the tide turned, and the Vizier was able to promise to 'Alī Muḥammad freedom and service. The emperor was persuaded to give him the faujdārī of Sirhind,[2] a responsible position. On this 'Alī Muḥammad Khān called Ḥāfiz Raḥmat Khān with a big army which he had to maintain in his new place. This army was composed of the Rohelahs mainly.[3] After due formalities, the firmān (orders) was issued by the imperial secretariat, and 'Alī Muḥammad Khān was restored his title, the privilege of keeping kettle-drums and banner, and was given a mansab. He had to leave two of his sons as hostages for good behaviour, in the imperial palace.[4]

This kindness to the erstwhile rebel is rather anomalous. Perhaps it was due to the kind regard of the Vizier, always a friend of 'Alī Muḥammad Khān. The guess of

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[1] Gul-i-Raḥmat, p. 35.

[2] Imperial Gazetteer of India, Vol. XXIII, p. 20. In Patiāla State.

[3] Gul-i-Raḥmat, pp. 36-7. It gives the number of army as 7,000.
Gulistān-i-Raḥmat, f 23.

[4] Gul-i-Raḥmat, pp. 37-8.
Gulistān-i-Raḥmat, f 23.
Akhbār Ḥusain, p. 24.
Bayān Wāq'ai, f 62, etc.

Hamilton,[1] that the emperor was forced by the tumult of the Rohelahs who had gathered in the capital, relies for veracity on the statement of Dow,[2] who is not very authentic, and is, moreover, not supported by any Indian chronicler. It was the custom in Mughal times that a rebel was not debarred from service for ever. He was generally transferred to another charge and kept under proper supervision. So with a considerate Vizier and the Mughal custom, it is no surprise that 'Alī Muḥammad Khān was so treated in the degenerate days of the Empire. Dow blames Muḥammad Shāh for leniency. He attributes it to 'corruption, infatuation and folly.'[3] But the emperor's action was in accordance with the old traditions, and was sane as well. The separation of 'Alī Muḥammad Khān from his compatriots in Katehar made him harmless, and particularly when he would be so close to the capital. It had the supreme merit of appeasing the Afghān element, which was still influential in the state, and at the same time disarming the Rohelah of all his sting.

'ALĪ MUḤAMMAD'S WORK IN SIRHIND:

The governorship of Sirhind was no easy task. The zamīndārs were refractory and refused to pay the usual revenues to the government.[4] This circumstance was favourable to 'Alī Muḥammad Khān, and he was appointed to bring the rebellious landlords under proper control. His dash, courage and bravery, and his experience in subduing the more contumacious chiefs of Katehar, were regarded as suitable qualifications to entitle him to this office.

Reaching there, he summoned the various chiefs to pay the arrears of revenue to him. He wrote letters to

[1] Hamilton, Rohilla Afghans, pp. 67—9.
[2] Dow, History of Hindustan, Vol. II, p. 340.
[3] Ibid., p. 340.
[4] Gul-i-Raḥmat, p. 38.

Ālhā Jāt,[1] to Bhārāmal of Rāipur; to Nigāhāmal of Jotpur and to Rāi Galla,[2] among others, to come to him and clear up their accounts. But they cared little for royal authority and replied in haughty tones. 'Alī Muḥammad was not a man to leave them easy and determined to chastise them. He was persuaded by Ḥāfiz Raḥmat to depute the latter for the work and remain himself at the headquarters,[3] a wise suggestion.

Ḥāfiz Raḥmat Khān set out to subdue the landlords one after the other. He first defeated Bhārāmal and secured much booty. This victory raised the prestige of the leader, and brought new accessions to power. Nigāhāmal was subdued and forced to pay 65,000 rupees as the amount of arrears. Rāi Galla was the most important and powerful. The reduction of his power after a three days' siege to his fortress brought him to his knees, and brought from him the payment of all the arrears, amounting to one lac and 30,000 rupees. After this event, writes the chronicler, there was peace in the entire division, and all the landholders paid up their dues.[4] 'Alī Muḥammad's success was complete and he had amassed a large treasure, and had collected under him a huge force composed mostly of the Afghāns who had flocked to him from many quarters.

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[1] Eliot writes 'Bhalha Jat' but my MS. of Gul-i-Raḥmat gives 'Ālhā Jat' as the name Other MSS. I saw in Rampur Libraries also give the latter spelling. Perhaps it was a mistake of the scribe of Eliot's MS.—Eliot, *Life of Hafiz Raḥmat Khan*, p. 22.

In *Tārīkh-i-Sultānī* translation in *Indian Antiquary*, 1887, p. 265, one 'Allah Singh Jaṭṭ' is mentioned as zamīndār of Patiālā who was sent to fight in the army against Aḥmad Shāh 'Abdālī in 1747.

[2] Rāi Galla Jagruānī is also mentioned as one of the assistants of the Vizier—I. A., 1887, p. 265.

[3] Gul-i-Raḥmat, p. 38.

Eliot gives the contents of their replies. Life of H. R. K., p. 22.

[4] Gul-i-Raḥmat, pp. 38—44.

It is not known if he sent any remittances to the Imperial exchequer. The probability is that he kept the most of it for himself in the hope of being able to regain his old possessions. He remained the faujdār for about sixteen months, which time was mostly taken by the many expeditions, but during this short period even, he had become famous.

INVASION OF AḤMĀD SHĀH 'ABDĀLĪ AND THE RETURN OF 'ALĪ MUḤAMMAD TO KATEHAR:

Meanwhile the clouds were once again gathering upon the North-Western Frontier and threatening the peace of the land. Aḥmad Khān Sādozaī, of the 'Abdālā tribe, an officer of Nādir Shāh, had repaired to Afghānistān after the murder of his chief, in the hope of establishing a strong monarchy there. He was welcomed by his tribesmen and was made king. He very well understood the needs of Afghān monarchy. He was aware that war was a necessity for the people over whom he ruled. The Afghān nature is essentially predatory. Their love of independence always stands in the way of an efficient government. Their allegiance is attracted like magnet by the bravery and military conquests of the ruler. So he wanted to shed the glamour of foreign conquests in order to silence the forces of disorder at home. By this means he could hope to distract the attention of ever-warring tribes of Afghānistān, and secure for himself improved resources and wide territory. The country to his north-west was closed against his depredations, for the spirit of nationalism aroused by Nādir Shāh could not tolerate the rule of Afghāns. The only land which could provide him easy prey was Hindustān which had been so lately subdued by his chief. He had commanded a contingent of Nādir Shāh's army in this country, and had fully realised the weakness of the Mughal monarchy. The constant mutual rivalries and jealousies of the nobles would afford him an easy

entry and rapid conquest. Then as heir to Nādir Shāh in Qandahār, he had a prescriptive right to the possession of the territories west of the Indus. These considerations led him to turn his arms against Hindustān and see if he could establish an Afghān monarchy here.[1]

Muḥammad Shāh made preparations to resist the invasion and despatched a huge force under his son Prince Aḥmad Shāh.[2] But at the outset, according to Gul-ī-Raḥmat, he was faced with the problem of 'Alī Muḥammad Khān. With his twenty thousand Afghāns in Sirhind, the Rohelah would be a welcome ally to 'Abdālī. The emperor felt that 'Alī Muḥammad also will be quite willing to go over to the invader, for firstly 'Abdālī was his compatriot and secondly, it must have provided him an opportunity to avenge his late disaster in Katehar. So the emperor decided to restore him to his old possessions in Katehar. This was the only alternative which could isolate him from the invader. The usual formal grants were drawn up and 'Alī Muḥammad Khān was instructed to return to Katehar promptly.[3]

But before the orders for restoration could reach Sirhind, it is so mentioned in Gul-i-Raḥmat, 'Alī Muḥammad Khān received a letter from 'Abdālī inviting him to join his forces

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[1] Dow suspects that Karīm Khān would expel 'Abdālī from Afghānistān and then the latter may establish an Empire in India.

Dow: History of Hindustān, p. 382.

[2] Tārīkh-i-Muzaffarī MS., p. 463.

[3] Gul-i-Raḥmat, p. 44.

Gulistān-i-Raḥmat, f 28-29.

Other authorities do not mention of any such transfer of office. They are unanimous in attributing to 'Alī Muḥammad Khān the blame that he fled from Sirhind, taking advantage of the invasion of Aḥmad Shāh 'Abdālī. I have not been able to come to any definite conclusion but I think that the suggestion contained in *Gul-i-Raḥmat*, etc., is not improbable. For the opposite view see

Hamilton, p. 82; Jām-i-Jahān-numā, p. 497; Tārīkh-i-Muzaffarī, p. 464, etc.

with the invader's, and promising him the Viziership of Hindustān after the conquest.[1] The offer must have been tempting, and particularly at this time. His advisers nodded their assent to it. But the arrival of the orders from Delhi changed the whole course. 'Alī Muḥammad Khān could not risk the sure chances of a rule in Katehar for the uncertain prospects of a Viziership, and so decided to return to Katehar immediately.

Prince Aḥmad Shāh opposed the advance of 'Abdālī, at Māhīwārah. 'Abdālī had taken advantage of the defencelessness of Sirhind, where the Vizier had left his baggage and the two sons of 'Alī Muḥammad Khān after the latter's departure, and leading a diversion stormed the fortress and took the two children in his possession, perhaps with a view to win over 'Alī Muḥammad Khān to his side in his future designs. But the foreigners were effectively defeated by the imperial forces and forced to retire behind the Indus.[2] 'Abdālī's schemes were frustrated.

'ALĪ MUḤAMMAD KHĀN'S RETURN TO KATEHAR:

'Alī Muḥammad Khān returned to Katehar by way of Chāndī Ghāt and appeared suddenly before Murādābād. Here he appointed his own officers, leaving the imperial officials to retire as soon as possible. Then he went to Barelī and without the use of force expelled Ḥidāit 'Alī Khān, the faujdār there. Meanwhile, all the Afghāns of the country had welcomed him and had come to offer their services. He was once again the master of the country.[3]

[1] Gul-i-Raḥmat, pp. 44-45.
Gulistān-i-Raḥmat, f 29.
There is mention of this letter in *Akhbār Husain*, p. 24 also; but it is further mentioned that after this he was called to Delhi and given Katehar.

[2] Gul-i-Raḥmat, pp. 46—54.
Tārīkh-i-Muzaffarī MS., pp. 462—464.

[3] Gul-i-Raḥmat, p. 45.

This return was so sudden and so unexpected that many chroniclers thought that 'Alī Muḥammad Khān had fled from Sirhind, taking advantage of the invasion of 'Abdālī. The circumstance of the issue of an imperial order for this restoration could not be believed generally, and later writers, depending upon rumours, called it a rebellious flight. But the facts as such confirm the statements in Gul-i-Raḥmat and others. The stationing of the sons of 'Alī Muḥammad Khān in the fort of Sirhind in immediate charge of his baggage by the Vizier, the lack of opposition by the imperial officers in Katehar, and the later recognition of his authority by the central government, all prove the same.

SETTLEMENT OF KATEHAR :

The chief need of the moment was to re-establish his authority over the entire country and bring under his control all the fiefs of the nobles of the court. He re-annexed the districts of Sambhal, Murādābād, Nagīnā, Dhāmpur, Sherkot, Barelī and Shāhjahānpur, and appointed his officers to administer the whole country between the Ganges and the Himalayas.[1] Then, he turned his attention to the collection of the due taxes, and the progress of cultivation.[2] For efficient administration, land was parcelled out in jāgīrs among the officers and subordinates, who were closely watched by the all-vigilant chief, and were not allowed, as yet,

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[1] Farah Bakhsh MS., pp. 43-4.

It is mentioned in this work that he expelled the zamindars of all the places. No noble of the court had the power to take back his country but all resigned to this loss of property.

For Hamilton's account of his restoration, see Rohilla Afghāns, pp. 84—6.

He mentions the cruelty with which he treated the Hindus, and suspects in his decided mode of action a desire for independence. Hamilton, p. 87.

[2] Gul-i-Raḥmat, p. 46.

to become independent. He retained Ānwlah as the seat of government, and it became a great and important city.[1]

DEATH AND THE ARRANGEMENTS FOR SUCCESSION.[2]

After his return from Sirhind, 'Alī Muḥammad Khān had lost his hearing 'in so much that it is said he could not hear the report of a cannon.' 'He was also at the same time seized with a dropsy which baffled the skill of the physicians.' He had been incapacitated for business, and some time after, lost all hopes of his recovery. He was 'anxious to put affairs on such a footing as would secure the inheritance of his territories to his children.' All his sons then in Rohelkhand were minors and incapable of holding the reins of government. As Hamilton points out, "'Alī Muḥammad Khān was sufficiently aware that the transfer of government into any one hand until their maturity would be likely to defeat his intention;—but he hoped by a judicious partition of the whole power among a number of the principal individuals, for that period, to create a counterpoise of interests in the community, which might eventually operate in favour of his heirs."[3] With this intention he called all his

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[1] A town in the district of Bareilly.

[2] Gul-i-Raḥmat and Gulistān-i-Raḥmat have an account of the help 'Alī Muḥammad Khān sent to Shujā-ud-daulah at Delhi in his contest with Intizām-ud-daulah, son of Qamruddīn Khān, the late Vizier, for the post of Vizārat. It is mentioned that Ḥāfiz Raḥmat Khān was sent for the purpose and he was given the title of Nawāb by the Emperor at the request of the new Vizier. But I have not been able to trace this story in any of the other histories of the time. No disputed succession to Vizārat is mentioned by any of the general histories of the reign of Aḥmad Shāh but on the contrary, all are unanimous that the post was given to Shujā-ud-daulah without opposition. Under the circumstances, I have not mentioned it in the regular history of 'Alī Muḥammad Khān.

[3] Hamilton, p. 89.

officers and fief-holders together and asked them to select a chief. Gul-i-Raḥmat has an interesting account of how Ṣ'aādullah Khān, a boy of six years, was proposed by the principal chiefs to succeed his father, but was set aside by the dying chief as unfit for holding the command, and how he placed his turban on the head of Ḥāfiz Raḥmat Khān recommending him to other officers for honour and respect. Also it is therein stated that Ḥāfiz Raḥmat Khān in his own turn placed the turban on the head of Ṣ'aādullah Khān and promised on oath to serve his young master faithfully and loyally. All the other chiefs also offered their allegiance to him.[1] But, though S'aādullah Khān was recognised unanimously as the chief the constant care and services of all the principal men were required. 'Alī Muḥammad Khān was not ignorant of the influence of these men, and so made a partition of the whole land among them, and appointed Raḥmat Khān the guardian or regent, Dūndī Khān, the chief commander of the army, Fateh Khān, the chamberlain (خانسامه) and Sardār Khān, the paymaster of the forces (بخشي). Others were also associated with them in the general administration of the country.[2] Thus, before his death, he appointed a regency to act for his minor sons, and gave them adequate fiefs for maintenance. He died on 14th September, 1748 'amidst the murmurs of sorrow and applause' of his subjects and countrymen.[3]

[1] Gul-i-Raḥmat, pp. 59-60.

[2] Hamilton, pp. 90-1.

[3] The above date 3 Shawwāl, 1161 A.H. is given by Eliot in his 'Life of Hāfiz Raḥmat Khān,' p. 28, and supported by Irvine, J.A.S.B., 1878, p. 375, whereas Hamilton gives the date as 4 Jamādi-us-Sānī, 1160 A. H. which seems wrong. Ghulām Ḥusain writes that he was in Bareli in Muḥarram 1161 A. H., when his father was there. 'Alī Muḥammad Khān died some months after the expulsion of Hidāit 'Alī, and so the date of Hamilton must be wrong. Further the authority of Gulistān-i-Raḥmat is more acceptable than that

CHARACTER:

'Alī Muḥammad was of middle-size in stature, strong and fair, with a wide forehead which gave an index to his intelligence and tact. He was brave, courageous, wise and clever,[1] the qualities which had made his life a series of successes. He was genial in temperament and beloved of all his men. He was a born leader of men and attracted people to his standard. But, he was unscrupulous, and like his adoptive father, did not hesitate in resorting to questionable means for the realisation of his cherished ambitions. He did not scruple in getting the murder of his rival Dūjā and had no moral qualms in withholding the rents due from him. His aspirations were high, and it is probable that he had at one time thought of conquering the entire province north of the Ganges. It is not clear if he had ever any ambitions for sovereignty; but it may be fair to conclude that he was quite aware of his disabilities and did not seriously desire it.

He was a thorough Muslim and encouraged learning and art. The palaces in Ānwlah were built with great care and taste, and stand out as models of the degenerate art of the eighteenth century. He encouraged learned men to come to his place and gave them adequate pensions and land-grants. He was generous, kind-hearted, sincere and charitable. But, withal, he was a great fighter and a skilled general who was mostly victorious in his attempts. He was a good statesman and had a clear idea about the cards he was playing for the establishment of his power.

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of Hamilton. It is also supported in Akhbār Ḥuṣain which gives the date as 17 Shawwāl, 1161 A.H., the month and year being the same, the exact date may have been wrong due to the mistake of the scribe.

Akhbār Ḥusain, Rampur MS., p. 31.

[1] Gul-i-Rahmat, p. 60.
Gulistān-i-Raḥmat, f 34.

He was a great man who raised a powerful state which might have been a serious rival to the advance of the British Empire in Northern India. But his premature death did not allow him time to consolidate it, and shortly after his death the whole structure came down with a crash.

Section II

PHILOSOPHY

THE IDEAS OF PLATO*

BY

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§ 1. Introduction.

On the interpretation of the Platonic "Ideas" "there seems to be a war of giants and gods going on amongst" Platonic scholars. The Plato-Socrates question and the question of the chronological order of the dialogues have proved supplementary weapons in this warfare. The supposition that Plato believed in "separate," "thing-like," Ideas has prevailed since Aristotle paid the debt of sitting for twenty years at the feet of Plato, by misrepresenting the theory of his great master and subjecting it to a violent criticism in the Metaphysics and elsewhere. In the modern age, it has been advocated by many scholars—notably Dr. H. Jackson—that Plato has two doctrines, one "earlier" and another "later." Others have gone so far as to say

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* *Note.*—It seems advisable to mention that this essay was written in 1926 when I was a student of M.A. (Final) class, and is now printed in its original form. The books were studied and the essay itself was written in the few intervals afforded by the study of text-books during the Dasehra and X'mas holidays. The essay is thus a hasty composition, and therefore some rough expressions, and loose statements may be found in it, for which I must apologise. I may also mention that Prof. Taylor's monumental book on Plato had not been published when I wrote this essay. If I were to write the essay now, I must of course take much help and guidance from his masterly and authoritative work as well as from the works of certain other European and Oriental scholars and philosophers which I have studied since this essay was written.

that Plato's doctrine is different in every dialogue, and no attempt should be made to reconcile these differences. These and similar views we shall have occasion to discuss in the sequel. But I cannot help remarking, even at the outset, that I cannot for a moment believe that Plato is a "many-headed monster," like the Sophist whom he describes, and that he has a way of appearing with new thoughts and doctrines after two or three dialogues. The fact is that Plato's theory of knowledge is usually deeply embedded in the subject-matter discussed in his dialogues, and his exposition of the theory and the terminology in which it is expressed, are all adapted to the general argument and theme of the particular dialogue. It is because of this that his statements of the doctrine in two dialogues having different themes appear to be different at first glance. Plato is not bound to give a full exposition of his doctrine whenever he mentions it, and it is a mistake to expect a full exposition of his doctrine in some single dialogue. The earlier dialogues exhibit the doctrine in the making; and when it has grown to its full development, Plato brings only so much of it into a dialogue as is required by the subject-matter. The business of the student, therefore, should be to supplement the deficiencies of any particular dialogue and to clear its obscurities by a reference to the rest, and not to take the exposition in any single dialogue or group of dialogues in isolation, and declare it to be different from any other similarly isolated statement. We can reach a full conception of the doctrine—in all its comprehensiveness—only by taking into account all the dialogues as a whole.

§ 2. The Principle of Interpretation.

In view of the above disputes and the unsettled character of many points concerning Plato's doctrine and his dialogues, we have tried to start with as few presupposi-

tions as possible. The Plato-Socrates question may be safely disregarded. It might be an interesting question for the historian, but for the student of philosophy it does not seem to be of great importance. We are primarily concerned with doctrines and only secondarily with personalities. The question will become important, however, if the so-called "earlier" doctrine be termed Socratic and the so-called "later" doctrine Platonic, and it be maintained that the theory criticized in the Parmenides is the Socratic theory. But we cannot have any such interest in the question; as we hope to show that the doctrine, as expressed in the dialogues—beginning from the earlier dialogues and ending with the Laws and the Epinomis —, exhibits a *harmonious* development.

Next we come to the question of the chronological order of the dialogues. Here, because we have to presuppose some order to begin with, we take for granted Prof. Burnet's order which is based on stylistic researches. We shall, however, make as little use of this hypothesis as possible, and take it only as a principle for general guidance.

It may not be amiss to mention here that I have almost solely relied on the Platonic dialogues and epistles for the understanding of the Platonic doctrine, and have not tried to correct or twist the statements of Plato in the light of Aristotelian evidence. No doubt Aristotle is almost the only external evidence, but no reason can be seen for adopting this external evidence in preference to definite statements of Plato himself. The right use of external evidence should be to elucidate any obscure points in Plato, and not to correct his statements. The examination of the Platonic dialogues, therefore, should be our first aim and our understanding of the doctrine of "Ideas" should be based on this. If after this, we can account for the criticisms of Aristotle, so far so good; if not, we should leave the business to the interpreter of Aristotle.

§ 3. The Outcome of Previous Philosophy.

Before undertaking the examination of the dialogues, however, it seems advisable to cast a glance at Greek philosophy before Plato. The conceptions out of which the doctrine of "Ideas" arose, and the problems to which it was an answer, had all been prepared in earlier history; and it will be hardly possible to understand the full meaning and significance of the doctrine if we ignore the speculations of Plato's predecessors. We shall, therefore, endeavour to give a very brief sketch of speculation prior to Plato, confining ourselves only to such points as are connected with Plato's theory.

The Ionians.—Philosophy began in Greece with the declaration of Thales that the ultimate cause and principle of everything was water. The question has been asked —what is reality?—what is the permanent element in actual existence, and of what are actual things composed?—what is the single reality appearing in different forms?—what is the permanent substratum (ὑ"λη) of natural facts? From Thales down to Plato and after, the various philosophical systems may be regarded as a series of attempts to answer this question. As regards the answers of the Ionians to this question, Aristotle best sums them up in the remark that "most thought the principles which were of the nature of matter were the only principles of all things." (Met. Bk. A). In a word, they had reached the conception of "matter."

The Pythagoreans.—The Pythagoreans start from the theory of Anaximander, the Melissian. Anaximander was struck by the fact that the world presents us with a series of opposites and accordingly spoke of the ultimate principle as a boundless something (απειρον) — an "undifferentiated mass"—from which opposites were "separated out. The Pythagoreans accepted the απειρον but rejected the notion of being "separated out." This notion was crudely

physical, while the chief studies of the Pythagoreans were Music and Mathematics. They said that what gives form to the ἄπειρον is the πέρας. The notion of the πέρας, they got from the sphere of Music. In Music it was found that the opposites blend together into a harmony which gives rise to a mean which can be numerically ascertained. The perfect concord they represented as the πέρας, which, when applied to the ἀπειρον of multifarious notes, gives rise to the mean. Music, it was felt, depended upon the order of the concordant intervals of the scale, which could be expressed in numerical ratios; and by altering this order, different scales could be obtained. These scales, the Pythagoreans called "forms" (εἴδη), simply because they differed in the order of their parts, while ultimately they were based on one principle. The same principle was applied to the sphere of Medicine, and there it was found that health consists in the harmonious blend of opposites by the application of the *Limit* to the *Unlimited*. Here too the word εἶδος is used for various "*forms*" or "patterns" into which the opposites—*viz.*, the humours of the body, combine and produce health. Having found that both harmony and health depended on "means" reached by the application of the πέρας to the ἀπειρον, the Pythagoreans proceeded to apply this principle to the phenomena of the world in general and reached the conclusion that all things arise out of the application of the "limit" to the "unlimited." This led them to reject the principle of Anaximander as "Separating out" in favour of the new principle of "the application of a *limit*." Now the Pythagoreans were great mathematicians also, and the *limit* could be exactly explained only in the sphere of Mathematics—in fact the *limit* can be best expressed by, and even finally reduced to, numbers. The climax of the Pythagorean doctrine was thus reached in the declaration that all things *are* primarily "numbers." It is important to note here that the Pytha-

goreans represented "numbers" by means of dots arranged in certain "εἰδη" or σχηματα (forms or patterns).

To review the general doctrine of this School, we see that they reached the conception of "form," first used the word εἶδος in explaining the universe, and said that things actually *are* numbers. As mathematicians always do, they gave thought prominence over sense. They also believed in the doctrine of transmigration. All these notions play an important part in Plato's philosophy and we shall do well to remember how they originated among the Pythagoreans.

Heraclitus and Parmenides.—Next we come to two opposite doctrines—*viz.*, those of Heraclitus and Parmenides. Heraclitus believed fire to be the ultimate reality. The world is an everlasting "fire," and so there will be a process of perpetual 'flux.' "You cannot step twice into the same river," and "we are and are not at any given moment." This doctrine, it is apparent, if transferred to the region of knowledge, will result in an extreme sensationalistic theory in which thought will find no place and knowledge would be impossible. Plato, as we shall see, takes great pains to criticize it in his dialogues.

Parmenides, on the other hand, gives all the prominence to 'Being' and 'Rest' and refutes all theories of 'Becoming' and 'Motion.' He was originally a Pythagorean, and the rise of Mathematics among them had revealed the power of thought. The mathematicians, more than anybody else, tend to make 'Thought' and 'Being' one. 'What is,' is for them equal to saying 'What can be thought of.' Parmenides, starting from this point, came to the conclusion that 'Becoming,' and 'Motion' are nothing. How he came to this conclusion, we may see. He had a conception of 'One' and 'Being' which excluded all notions of 'Many' and 'Becoming,' from itself. Now this abstract 'One' or 'Being' will itself become 'Many' if 'becoming' is attributed to it. In other words, we cannot think of the abstract 'One' or

'Being' as 'Many' or 'Becoming' and therefore *the Real cannot become.* There seems to be no inconsistency in the argument of Parmenides. From his premiss the conclusion logically follows. The defect in his theory is that the starting point is wrong, as Plato himself endeavours to show in the Parmenides. The merit of Parmenides consisted in having shown that if we start with an abstract conception of 'One' or 'Matter,' we cannot explain 'Becoming' or 'Generation.' It was seen that if we want to give an explanation of the world, we must somewhere presuppose 'Motion' and 'Many' in the 'Matter' and the 'One.' Plato, we may note, was greatly influenced by Parmenides—'great and venerable, in Homeric language.' But he was ready to 'put hands on his father's doctrines' as far as it took a wrong conception of the 'One.'

Anaxagoras.—Parmenides has shown that there can be nothing called 'Becoming' if we accept the belief which has prevailed from Thales onwards—*viz.*, that all that *is* is one. But it is obvious that the things of the world come into being and cease to be. The senses prove that there is 'becoming.' It is, therefore, necessary (i) to show that there is such a thing as 'becoming' and (ii) to account for this 'becoming' or 'motion.' Anaxagoras and Empedocles attempted to solve this difficulty in almost the same manner. We confine ourselves to Anaxagoras, for Socrates says in the Phaedo that his own speculation began from a dissatisfaction with the answers of Anaxagoras. To begin then, Anaxagoras believed in a plurality of independent elements, which he termed "Seeds." There is nothing like 'being' or 'becoming' but we should speak of "commixture" and "decomposition." The things of the world rise out of the composition of the 'seeds,' and the differences that we see among these are to be explained in the different proportions in which the "seeds" are mingled. This is how Anaxagoras explained generation and growth. Only by making

the 'One' 'Many' was he able to account for the One. The next thing for him was to account for 'becoming" or "motion." What is the source of motion? 'Mind,' he said, is the source of motion as well as of knowledge. 'Mind' orders and separates things by producing a motion. This is all that Anaxagoras has to say about 'Mind' (νοῦς).

We can readily see why Plato should not agree to this explanation. As to the doctrine of 'Mind,' Socrates remarks in the Phaedo that it is unsatisfactory and incomplete. As to the doctrine of plurality, Plato was as averse to making the 'One' 'Many' as to making the 'Many' 'One.' That the 'One' must have the 'Many' in it, was his firm belief, but he could not agree to resolve the 'One' into the 'Many.'

Zeno.—Next we come to Zeno. His Philosophy is best regarded as supplementary to that of Parmenides, and Plato himself suggests this view in the Parmenides. His work was designed to show that the hypothesis that "things are many" must lead to the negation of the possibility of knowledge. The "unlimited" or the "continuous" cannot be composed of units, however small and however 'many' they might be. In a word, discreteness cannot give continuity, and so the 'Many' cannot be based on units. A line cannot be a sum of points, *i.e.*, Geometry cannot be reduced to Arithmetic. From this follow two conclusions: (i) that the many cannot give one and (ii) that things are not numbers.

After the Eleatics and Zeno, follow the Atomists. We need not, however, take into account their doctrine; for, as Professor Burnet expressly says, "Plato . . . knew nothing of Atomism" [Greek Philosophy, p. 97]. Accordingly we come to the Sophists.

The Sophists.—We may first note three points about them: (i) They were mainly concerned with rhetoric and oratory and so their speculations were concerned with 'knowledge,' rather than 'being.' (ii) They found that the world presented by science was just the opposite of that

perceived by the senses, and so they brought about a reaction against science. (iii) The political and social circumstances of the time made them think that nature was after all convention. This, combined with their antagonism to science, made them return to the commonsense standpoint and, as a result, give 'sense' prominence over 'thought.' And, doubting the belief of science that there was a fundamental reality, they went so far as to declare that there was no distinction between "truth" and "falsity."

The chief among the Sophists whom Plato mentions in his dialogues, are Protagoras and Gorgias. The famous doctrine of Protagoras is that 'Man is the measure of all things.' Plato repeatedly tells us that the meaning of this saying is that things *are* to us as they *appear*. Theories that are opposed to the senses may be safely ignored. Plato represents Protagoras as believing in extreme sensationalism at the expense of violating the law of contradiction, and proceeds to connect his theory with the perpetual 'flux' of Heraclitus. Now, if things are to everybody what they appear to him, two opposite statements will be at once true. In fact the distinction between truth and falsity is no longer tenable. According to this doctrine everything is true and the senses are the sure guide for reaching the truth, which itself is relative.

Gorgias proceeded in a more radical fashion. He maintained that there was no truth at all, and went further to show that there was no distinction between being and not-being. "What is not," *is* not, that is to say, it *is* just as much as "what is" [Burnet—Gr. Ph., p. 120]. For him knowledge was impossible. The Ethical counterpart of this doctrine was that there was no distinction between right and wrong. In a word, morality is *conventional* and not *natural*.

To sum up the net result of the Sophists' speculations: sense is our sure guide, there is no fundamental reality, there is no truth—no right and wrong—, morality is

conventional and knowledge is impossible. This means the annihilation of all science, philosophy and knowledge.

§ 4. The Problem of Plato.

Now we are in a position to see the problem to which the doctrine of Ideas was an answer. The Sophists had brought philosophy to a hopeless deadlock and none of the ways tried by previous thinkers led to knowledge. Plato had to place philosophy and knowledge on a firm and sure footing. His problem was: how is science possible? and how is sure knowledge possible? What general character should we ascribe to the objects of our scientific knowledge? Experience is disorderly and confused, is made up of what Plato calls 'opinions'—a host of conflicting, changing, contradictory beliefs. Science is a body of reasoned deductions from true principles—a consistent, fixed system of truths. Now, what is the relation between the two worlds?—the world of 'opinions' and the world of science (ἐπιστήμη). In other words the question is—of what nature are the objects cognized by the universal propositions of science and how are they related to the particular percepts of sense? Thus Plato, in spite of Kant's hasty inclusion of him among the dogmatists, is a critical philosopher—in the strictest Kantian sense of the term. In fact he is the earliest critical philosopher of Europe (and possibly of the world). His famous theory of "Ideas," as Plato intended it, is neither a 'dogmatism' nor 'poetical imagery' as Aristotle calls it in Met. M. It is primarily a theory of predication and a 'critical' philosophy—sharply contrasted with the 'dogmatism' of the Eleatics and the "scepticism" of Heraclitus and the Sophists. [Compare the 'perpetual flux' of Heraclitus and the sensationalism of the Sophists with Locke's position that only particular ideas constitute knowledge, and Hume's Sensationalism. Also compare the standpoint of the Eleatics, that thought by itself can constitute knowledge, with

that of the Rationalists. Plato, like Kant, pointed out to these schools their respective mistakes and lifted up philosophy from the hopeless position into which it had fallen.]

But after we have deducted the answer of the above problems from the dialogues of Plato, there still remains something unaccounted for, *viz.*, a good deal of mystical element. Greek philosophy had begun from mysticism, and most of the philosophers before Plato, especially the Pythagoreans, had a mystical tendency. Socrates and even Plato were very sympathetic towards mysticism—Socrates specially was more of a seer than a philosopher, and, as Prof. Taylor has shown in *Varia Socratica*, was connected with the Pythagorean Cult. Thus the doctrine of "Ideas" has two phases—one logical and the other æsthetic. It is a methodology of Science and an expression of the æsthetic experience. Sometimes the one and sometimes the other phase is prominent in the dialogues of Plato. Sometimes the "Ideas" are concepts and categories which make sensibilia intelligible, and sometimes they are objects of mystic contemplation.

§ 5 Examination of the Dialogues.

We now come to the examination of the dialogues. We must remember that the doctrine originated in the ethical sphere, and that Ethics was regarded as a science by Socrates and Plato. The Sophists had made urgent the need of resuscitating the Science of Ethics. It was the extension of the "Ideas," first discovered in the ethical sphere, to the physical and logical spheres, that finally gave rise to an all-embracing "Ideal" theory. Accordingly we find Plato concerned with Ethical "Ideas" in the earlier dialogues. We shall first examine the dialogues written before the foundation of the Academy. These, according to Prof. Burnet (*vide* Gr. Ph., pp. 211-212), are the Euthyphro, Apology, Crito, Charmides, Laches, Lysis, Euthydemus, Protagoras, Gorgias and Meno. Also the Symposium and the Phaedo;

and "the Republic well-advanced." "Phaedrus," says Prof. Burnet, "is not much later." The Cratylus also, about the date of which Prof. Burnet is silent, I place in this group, and should like to assign it a place *after* the Gorgias and the Meno and *before* the Phaedo and the Republic. It is admittedly one of the earlier dialogues, and the place that I have assigned to it is the same as assigned by Dr. Lutoslawski,* whose order is based on Campbell's method.

The Apology.—This is a proper introduction to the dialogues of Search, with its burden that nobody knows what virtue is, but Socrates alone knows that he does not know what it is (22, 23). It is shown here that the man who is guided, not by personal feeling through life, but by reflective thought, is really virtuous. To express the same in the familiar sentence—"Virtue is knowledge." But it is maintained in the Apology that, nevertheless, it cannot be taught. Now if "Virtue is knowledge," we must apply the method of Science to Ethics. Accordingly in the Euthyphro, Crito, Lysis, Laches and Charmides different virtues are made objects of knowledge.

In the *Euthyphro* piety, in the *Crito* justice, and in the *Lysis* friendship, are made objects of knowledge. The problem is to find the εἶδος of these virtues. Here Socrates is only concerned with the connotation or the concept. Although no definite answers are reached, yet it has been shown that we must know the εἶδος, if we are to understand these virtues. We give only one quotation from the Euthyphro: "I ask you to explain the general *idea* which makes all pious things to be pious . . . . . Tell me what is the nature of this *idea*, and then I shall have a *standard* (παράδειγμα) to which I may look, and by which I may measure actions." (6E) What Socrates is looking after in these dialogues, is an εἶδος which is the "*essence*" (11A), the constitutive principle, (6E) which makes the particular instances what they are. He wants to have a

*Vide *The Origin and Growth of Plato's Logic*, pp 162 *seqq.*

standard whereby to judge particular cases. In other words, he is looking for the definition and the logical concept.

It is worth noting that the 'paradeigmatic' view of the "Ideas" is clearly set forth here—I mean in one of the dialogues admitted to be the earliest on stylistic grounds, which are by far the safest. This is a definite evidence against the advocates of a "later theory." But they have got a way out of the difficulty. Some have denied the authenticity of the dialogue, others (Dr. Lutoslawski for instance) have refused to admit the words "εἶδος" and "παράδειγμα" in a technical sense, and a third group place the dialogue among the later ones. These three are the only ways of escape for those who try to draw out evidences from the dialogues in favour of their own preconceived theories about the Platonic doctrine. This way of treating dialogues commits the fallacy of arguing in a circle, to which let us give a special name—"the Platonic Scholar's Fallacy." [For the above passage in the Euthyphro, cf. Prof. Burnet, Gr. Ph., p. 154 note.]

Next we come to the *Laches* and the *Charmides*. These are closely allied to the three earlier dialogues, but with a little difference. The subject discussed in the Laches is courage and in the Charmides it is temperance (σωφροσύνη). The futility of investigating the various virtues singly has been shown in the three earlier dialogues as well as here. The failure suggests a way which is distinctly hinted at in the Laches and the Charmides, *viz.*, that the virtues cannot be explained singly—apart from the system to which they belong. In the Laches it is said that the "Idea" should be the same in "the future, present, past, and at any time" (199B). Plato here tells us that the "Ideas" are always the same and do not change like their particular instances. Again it is seen in the Laches that the definition of courage becomes "all virtue" (199E). Now let us see what has been effected in these dialogues. (i) The unity of knowledge has been shown. "There

is not one knowledge or science of the past, another of the present and a third of what is likely to be best, and what will be best in future, but . . . of all three there is one science only " (Laches 198D). And Socrates dreams of a metaphysician (Charm. 173 B-C) who may discover such an all-embracing knowledge. The idea of this knowledge, it is made clear, should be grasped, not by the observation of a few particular instances, but after a survey of the whole system. What is needed is the knowledge of the essential, unchanging, abiding : and not the phenomenal. (ii) We do not want to know each virtue singly, apart from the system ; that science is of no use to us. The science which is really required by man and conduces to his happiness " is a science of good and evil " (Charm. 174D). The knowledge of the good is shown to be the inwardness of temperance, and of each of the special virtues. This no doubt is a faint anticipation of the Republic and the Philebus. Knowledge of the good has been shown to be urgently needed, although no way to reach it is suggested. The outcome, then, of these two dialogues is that (i) the unity of knowledge and virtues in one system of the good has been shown and (ii) a definition of the good is shown to be a great desideratum. We may note that the " Ideas " here are " contexts " and " scientific points of view "—they show the definite relation in which the virtues stand to the good. [It may be pointed out here that the account of knowledge as concerned with what things always are, in the Laches 98D (quoted above) is to be compared with the doctrine of " Ideas " as set forth in the Rep. 516C, and the Theaetetus 178-179. I feel the comparison will go to prove that Plato has one consistent doctrine throughout his dialogues.]

The Euthydemus.—This dialogue is simply an illustration of the Fallacies. The only passage of any importance is 282E, where Socrates remarks that the right way of discussing the virtues for the Sophist would be " to show . . . .

whether he should have all knowledge; or whether there is one sort of knowledge only which only will make him good and happy."

The Protagoras.—The question discussed in the Protagoras is—Can virtue be taught? Socrates maintains that it is knowledge and yet will not admit that it can be taught. Protagoras denies that it is knowledge, but thinks that it can be taught. The only solution of the difficulty, Socrates urges, is the discovery of the true nature and definition of virtue. "My only object in continuing the discussion, has been the desire to ascertain the nature and relations of virtue; for if this were clear, I am sure the other controversy which has been carried on at length by both of us . . . would also become clear" (360E—361A). The point here is that virtue cannot be taught if the knowledge is to come from the lectures of the Sophists, and is to be received as a datum. But there is another sort of knowledge which Socrates had been at pains to discover in the preceding dialogues, and which, as we shall see in the Meno, may be drawn out from the mind itself. The question of the Apology—"Virtue cannot be taught"—has come to the front, and Socrates is making a distinction between the old Sophistical way of conceiving virtue as a mere "opinion" and his own method of treating virtue as an object of "science." And if we extend this notion to all spheres we shall get a lesson from the Protagoras—*viz.*, that true knowledge does not consist in merely taking into account the empirical datum and thus coming to empirical generalizations, but it consists in bringing the empirical facts in conformity with the laws of thought, seeing them in their "nature and relations" (361A), and thus reaching a scientific point of view or a logical concept.

The Gorgias.—This dialogue contains Plato's doctrine in an advanced form and bears close resemblances to the Republic and the Philebus. As is usually the case with Plato, the outcome of all previous dialogues has been utilized

and hints are frequently thrown out which are developed later on. The main question is the " notion of morality." The notion has not as yet been found ; but it has been made clear that virtue consists in knowledge, and knowledge of the " good." The notion of the " good," dimly seen in the Laches and the Charmides is defined to a certain extent. It is proved that the " good " is not the same as pleasure. The same conclusion is reached in the Philebus, but there the proof is based on logical principles, which Plato has not as yet discovered. In this dialogue, it is proved on the basis of three simpler arguments that pleasure is not the " good. " To this negative aspect of the " good " is added the positive aspect that " the good is the end of all our actions and all our actions are to be done for the sake of the good " (499E). To get at the notion of the good a man should have τεχνη and επιστη'μη. " *Knowledge* and *belief* are not the same thing ; for there may be a false belief and a true one, but there is no false knowledge " (454), ... and I do not call any irrational thing an art" (464E). The best example of an art is mathematics (508A. esp., and elsewhere), and the " philosopher " attains to the notion of the good by following methods like that of Mathematics. " The good man (like a true artist) will speak with reference to a standard . . . . and will dispose all things in order, and compel the one part to harmonize and accord with the other part until he has constructed a regular and systematic whole " (504A). " Communism, friendship, and orderliness and temperance and justice, bind together heaven and earth . . . . and the geometrical equality is mighty " (507E—508A).

We might note that the " good " is considered here as that which makes things " orderly." The " good " is order, system, organism (κο'σμοs—506E). [Cf. The Phaedo, the Republic, the Philebus and the Timaeus for parallel passages describing the ' good ' as order, the power of

Geometry, and the binding force of the 'good.'] Morality, *i.e.*, the life actuated by the knowledge of the 'good' has its foundations in "Philosophy" which looks to εἰδη (503E). [We must note that here the word "Philosophy" means the same thing as "dialectic," which word Plato has not used in this dialogue.] The art of the philosopher is the especial art concerned with the "Ideas" and of the system of these—the "Idea" of the "Good" without which the particular "Ideas" of virtues have no meaning, as it is the only end-in-itself.

The outcome of the Gorgias then, though it is unsafe to describe it in a sentence, is the fully bringing out of the views latent in the earlier dialogues, *viz.*: (i) that the true knowledge can be had only by seeing particular instances in their logical concepts, from a scientific point of view, or in an εἶδος, and seeing these εἴδη in their relations in a system, the Idea of the "Good"; and (ii) the notion of the "Good" and τέλος and κόσμος has been determined. It is important to note that the doctrines of the Gorgias, which is admittedly an earlier dialogue, have been maintained and described with greater fulness in the Republic, the Philebus and the Timaeus which are admitted by all critics to be later in composition. This, we feel, is an evidence against those who distinguish an "earlier" and a "later" doctrine in Plato.

The Meno.—The dialogue begins abruptly with the old question of the Protagoras—"Can virtue be taught?" We have already hinted the solution when dealing with the Protagoras. The problem of the unteachableness of virtue is here made an object of critical enquiry and the answer is given in the doctrine of Reminiscence. The Reminiscence myth is given in 81A—E, and we need not describe it. We have remarked above that Plato often brings in an element of mysticism in his writings, and here he combines mysticism with logic in a way which has given rise to much

misunderstanding. We leave the mystical side, and for the present consider only the logical one. On the logical side, the doctrine of Reminiscence makes explicit what we pointed out to be implicit in the Protagoras and the earliest dialogues, *viz.*, that only thought can give knowledge of things as they are. Knowledge is what one reaches oneself by hard thinking, and not what one gets from particular instances given by sense or the lectures of the Sophists. Mental activity is needed and by it alone can the " Ideas " be grasped.

We shall here consider three questions which will make the whole thing clear:

(i) *What are the " Ideas " recovered ?*—They are not particulars—not things. They are pure " forms " without sensible qualities, which are recollected by the stimulus of the sensible object which " resembles " them. [If the Meno is not quite clear about this point, the Phaedrus, which also describes the doctrine in æsthetic language, settles the whole point (cf. 24A and 251B-C).] What is recollected or thought out is not a sensible object, but a scientific concept, a point of view.

(ii) *What is meant by saying that thought only gives the reality, and the objects of sense are ' imitations ' of the " Idea " ?*—This theory, as Prof. Burnet points out, has its origin in Mathematics, and is to be traced back to the Pythagoreans ; as indeed the whole doctrine of Reminiscence goes back to the Pythagoreans. The sensible things which we call equal are none of them precisely equal. They are only imperfect likenesses of the equal. Equality itself is only grasped by the intellect. " The problem of an indefinite approximation which never reaches its goal was that of the age " (Burnet—Gr. Ph., p. 156). The objects of sense are " striving " or " tending " to be such as the equal, but they fall short of it, and as such they may be described as " becoming " while only the " Idea"—the scientific point of view or the notion reached by thought—can be rightly

called "being." Now as to the question, what is meant by "imitation"—we may give the answer which Prof. Taylor has so often given. By "imitation" is meant the relation between the equation of the curve and the circle. The circle we see, but the equation—a scientific point of view, a law—we grasp by the intellect. But every circle is according to this equation, and thus may be said to "imitate" it.

(iii) *What is meant by the recollection of the "Ideas" and by saying that the mind has them?*—By this statement Plato simply means that mind by its very nature reacts upon the objects of sense in certain ways, and by means of concepts and categories gets knowledge out of the sensibilia. "The concepts are the source of knowledge." The way of the reaction of the mind is inherent in its very nature and in this activity the mind is helped by concepts—this is the simple meaning of the recollection of the "Ideas" as far as the logical side is concerned.

One point here requires special attention. The "Ideas" are here, no doubt, *eternal* and *immutable* for Plato. But this only so far as the laws or scientific points of view should be fixed and the same for the past, the present and the future, and no further. As soon as they are used—*i.e.*, become real—they are "recollected" and thus become dynamic. Thus we see that there is no undue fixedness about the "Ideas." They are static only for making knowledge possible, but in real use they become dynamic.

We have to consider yet another passage in this dialogue. The passage (97-98B) describes the distinction between 'opinion' and 'knowledge.' Opinion is knowledge of the effect without the cause; but it does not "remain long" and "runs away out of the soul." Knowledge is opinion "fastened by the tie of the cause, and *this fastening* . . . is *recollection*" (98A). The knowledge of the cause is the knowledge of the 'Idea' and as such the '*Idea*' is here the *causal context*. This is the doctrine of the Meno, when stripped

of its myth. Plato, in writing this passage at the close of the dialogue, resembles an allegory-writer who sometimes gives a hint at the end of his story to enable his readers to interpret the metaphors and similitudes rightly. The passage confirms our interpretation of the mythical passage on its logical side. It may be noted that the word " dialectic," as the science of " Ideas," is first used in this dialogue (75D).

Leaving the Symposium as primarily concerned with the æsthetic side of the doctrine, we come to the Cratylus.

The Cratylus.—So far the " Ideas " had been limited to the ethical sphere ; but now their application widens, and in the dialogues which follow they are extended to the sphere of Logic, Mathematics and other sciences in general. The doctrine of " Ideas " which has been found useful in the domain of Ethics is now evolved into an all-embracing theory which aims at explaining the problems of Being and Knowledge.

The ostensible subject of the Cratylus is—' Whether names are connected with things or with words ? ' The real problem, however, is—What is the relation between appearance and reality, between the ' Ideas ' and particulars ? In the first part (383 —437) Socrates maintains the "thing-view" only to show its limitations in the second part. A name is an instrument and its function is to declare the nature of the thing. It " is an instrument . . . of distinguishing natures, as the shuttle is of distinguishing the threads of the web " (388C). The maker of the names must " make and give all names with a view to the ideal name" (389E). Just as the smith expresses the natural form in the material, in the same way the true artificer of names is he who " looks to the name which each thing by nature has, and is able to express the true forms (εἶδη) of things in letters and syllables" (390E). [Here we have the " Idea " of a name.] But it has been said above that a name is an instrument,

and the true nature of an instrument is relative to its '*use*' and '*function*.' "Then the form of the names, the 'Ideal' name for each thing will be known to the user of names, *i.e.*, the dialectician" (390C). The name declares the nature of the thing by "resembling" it like a "picture." The names are imitations of things. The "Idea" of the name must express the "Idea" of the thing, and the dialectician, who is the "user" of names, must know the essence of both.

In this passage the *use* of the name, as the dialectician understands it, is the "*Idea*" of the name. The "*Idea*" is here the *final cause* (cf. Rep. X, 601 sqq.). We may note that in the above passage the "Idea" is explicitly spoken of as a *need* to be met with in a definite way and this is implied in the notion of the *instrument* and *use*.

Now we come to the second part of the dialogue (437—440), which is a severe and searching criticism of the sensationalistic position. Misleading names are frequently to be met with, and until we know the things we cannot know the truth and falsity of names. Therefore, "the knowledge of things is not to be derived from names. No, they must be studied and investigated in themselves" (439B). [The "*things*" of this part of the dialogue are *universals*, with the naming of which the dialectician is concerned. Cf. Stewart—Plato's *Doctrine of Ideas*, pp. 37-38]: "The true and the natural way of the knowledge of these things is through their affinities, when they are akin to each other, and through themselves. For that which is other and different from them must signify something other and different from them" (438E). That the things must be thus studied and investigated is indispensable, and that there are such things is indisputable, for otherwise knowledge would be impossible. We must reject the Heraclitean "flux"; for "you cannot reasonably say there is knowledge at all if everything is in a state of transi-

tion—you cannot know that which has no state" (440A). If knowledge is to be possible, we must say there is a permanent beauty, a permanent good, and so on. "We must seek the true beauty: not asking whether a face is fair, for all such things appear to be in a flux; but let us ask whether the true beauty is always beautiful" (439E).

The "Ideas" of the Cratylus, which we have been discussing above, are contents of predication to which a fixed meaning belongs. In this respect the Cratylus anticipates the doctrine of categories worked out in the later dialogues. We can also see here what Plato means by '*fixed*,' "*immutable*" 'Ideas.' They are not things, but points of view, universal notions, scientific laws, needs* to be met in specific ways, or the final cause—whichever word may suit them best. Their business and use is to make the sensibilia coherent and intelligible. In this dialogue, Plato has Heraclitus directly in his view. The sensible things are contradictory and changing. Now if we say with Heraclitus that the world is a continuous flux—"all things will leak like a pot and the world will be a man having a running at the nose" (440D). This metaphorical sentence of Plato has a serious meaning. The continuous flux of sense cannot as such be the object of discursive thought—thought cannot understand perfect spontaneity. To be able to know the *continuous* flux, thought has to find a series of *discrete*, though juxtaposed, pieces, which remain in the same state; and the perpetual, only when thus understood, can be the object of knowledge. In other words, we may say, that thought has to apply its own fixed laws, categories and concepts to make sensibilia intelligible. It is to be noted that in Cratylus Plato, in the spirit of the true critical philosopher, has shown the sensationalist his mistakes.

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* Of course, I do not mean to identify 'points of view' and 'needs' (values).

The Phaedo.—This dialogue is almost wholly occupied with the doctrine of "ideas." Four connected passages are to be distinguished:

I. 65—68.—"Sight and hearing and the other senses convey no truth to men . . . The soul, coming to be as much alone with itself as is possible, strives after real truth" (65 B-C). There *are* such entities as "absolute beauty, absolute justice and absolute good . . . I am speaking of all absolutes, whether size or health or strength—in a word, of the essence or real being of *everything*" (65 C-D). "Verily if we have any pure knowledge at all, the soul by herself must behold things as they are" (66D). The study of the philosopher "is simply the release and separation (χωρισμος) of the soul from the body" (67C).

Here the moral "Ideas" are described first, then the "Ideas" of magnitudes are expressly spoken of, but the sphere of "Ideas" is extended to everything. Another point of importance is that the terms χωρίς and χωρισμος occur here, and the sensible and the intelligible are rather sharply distinguished. I should like to point out in this connection that the "Ideas" are 'separate' no doubt, but only so far as they are abstractions—the universal is not the same but separate from its particular instances. They are not absolutely separate in the sense of being separate thing-like existences. The soul has to be separated, but as it is distinctly said, only so far as it is possible. It is to be remembered in this connection that Plato is here thinking of the Mysteries (cf. 69C) and the separation of the soul from the body, if taken in an absolute sense, must belong to the mystical side of the doctrine and not to the logical. It is in ecstasy only that the soul is fully released from body; and Plato is very fond of talking about this experience. But we must not mix together the logical and the æsthetic sides, which will only result in misunderstanding. The "Ideas" so far as their logical side is concerned, are never absolutely separate from the sensible. The

sensible is never discarded in the Platonic philosophy. In fact the phrase, 'to save the phenomenal,' has its origin in the Academy. All doubt on the above passage is removed by 79A, where the sensible world is presented as another kind of existence and is placed side by side with the world of "Ideas."

II. 72—77.—This is a passage on Learning and Reminiscence, and as such it substantially agrees with the passage in the Meno. Here, as well as in the Meno, it is the *original* of some copy now presented in sense, not a *formerly presented copy* that we recollect. We remarked this in our examination of the Meno and here the point is stated in so many words by Plato himself. There is such a thing as "equality in the abstract," says Plato. "It is from seeing equal pieces of wood, etc., that we form (its), Idea." (*i.e.*, we recollect equality). "The equal things are both equal and unequal (*i.e.*, never truly equal), but equality is always equal . . . Then we must have had knowledge of equality before we saw equal things" (73A —74C).

We have discussed the meaning of such statements in connection with the Meno. We have to note here that the a-priori element in knowledge is described by Plato as the previous knowledge of an original. Here Plato describes the concepts and categories of the understanding which are a-priori (cf. 75B), but at the same time, are made explicit or realized *only* on the occasion of sense-impression (cf. 74D-E). The mind has them inherent in it, but knows them only after using. Thus we see that Plato was not a believer in the innate ideas like the dogmatists but he believed only in the a-priori.

In this passage Plato enumerates (i) the Mathematical "ideas"—"the equal, the greater, the less and *everything of the same kind* (75C); (ii) the Ethical "Ideas"—the good, the beautiful, the just, etc.; and (iii) the logical

"Ideas"—"like and unlike" (76A). But the application of "Ideas" is extended to "*everything* which we mark with the name of the *real*" (75C). These groups of "Ideas" are the laws or conditions of thought and conduct —these are ways and rules in which we must think and act on the occasion of sense-impression. They are to be used in this world and not in any super-sensible world.

III. 78—84.—"There are two kinds of existences, the one changing continually and known by sense, the other unchanging and always the same with itself, which is known by the reasoning of the intellect" (79A). The soul belongs to the latter kind and when she investigates any question by herself, she goes away to the pure, the eternal, and the immutable (790).

The importance of this passage lies (as we have seen on the previous page), in recognising the sensible as a distinct class of existence, side by side with the intelligible. We shall see other such passages in the sequel which will go to prove the mistakenness of remarks like that of Kant "that Plato flew on the wings of 'Ideas' and discarded the world of sense."

IV. 96—107.—In this section the inquiry is made not in the sphere of 'being,' but in that of judgments. Socrates begins by describing the development of his own views. The starting point of his theory, he says, was his dissatisfaction with the doctrine of Anaxagoras which could give no explanation of becoming or generation. Then Socrates proposes to pursue the enquiry in the sphere of judgments. He will examine the truth of existence by means of judgments, lest he becomes blind by looking at the things and trying to grasp them with his senses (99D-E).

Two kinds of existence have been recognized in the previous section. Accordingly, there are two kinds of judgments—the pure fundamental judgments, and the empirical judgments which are based upon them. "If we wish

to discover the cause of the generation or destruction or existence of a thing, we must discover how it is *best* for that thing to exist or to act or to be acted upon" (97D). "It is the binding force of the good which really binds and holds things together (καί ως αληθως το αγαθον και δεον συνδειν και συνεχειν ουδεν) *99C [cf. The Charmides and the Gorgias before; and the Republic, the Philebus and the Timaeus after]. This is the first pure fundamental judgment, *viz.*, that the world is good. The good is the principle of the world (99D); it is the real cause, the necessity, the ought-to-be (97C and D), the principle of maintenance ('binding' and 'holding') (99C), the order, the balance (97C); and it is the sufficient reason (98B) for everything in the world.

This sort of description of the 'good' clearly shows that the 'Ideas' are the laws and the 'good' is the one all-embracing law of cosmos, or the system.

Now with regard to the relation of the particulars to the "Idea," we may express it by the words "partaking" (100C) or "presence" or "communication." We may call the relation "whatever we please" (100D); but must keep in the mind that "it is absolute beauty which makes things beautiful" (100D). The meaning here is clear. The empirical judgment—*e.g.*, this thing is beautiful—is, if true, justified by its 'communication' (we may say 'conformity') with the fundamental judgment which describes the notion of the beautiful. The relation between the "Idea" and the particular, as described here, is the same as that between a logical concept and its particular cases, or between a specific case and the law which governs

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*I have quoted the original Greek and followed Burnet's translation given in his edition of the Phaedo. There is a controversy about the translation into which I find myself wholly unqualified to enter, and so I have appealed to Prof. Burnet's authority.

it. The fundamental judgments, says Plato, are eternal truths.

The truth of these fundamental judgments, the "principles" as Socrates calls them, is assured by deduction—by showing that they are inter-related and finally dependent upon one place, which is a "satisfactory resting-place" (101E). We may express this thought by saying that the object always is to test a law by connecting it with, and making it conform to, other laws and finally to the one law—the System. The new truth is to be related to the system of already achieved knowledge.

"The form of the empirical judgment is 'X is A,' 'X is not-A,' 'X is B,' 'X is not-B,' A and B being εἴδη defined in fundamental judgments. But the two judgments do not contradict each other, for in such empirical judgments the contradictory predicates are either not simultaneous or are applied to what are practically different subjects, *viz.*, to X in different relations and on different occasions. Thus the X—the subject of the empirical judgment—is receptive in different relations of contradictory predicates." (102 C—E).*

Here the question of predication, which was denied by Antisthenes, is partially solved; and in its treatment of this problem the passage anticipates the later purely logical dialogues.

Now we close the examination of the Phaedo with an enumeration of the kinds of "Ideas" recognised in this dialogue. Five kinds are definitely recognised by Plato, while the sphere is extended to all things in general, just as it was done in the earlier dialogues. These five kinds are—(i) Ethical, *e.g.*, good, beautiful, just, etc. (100), (ii) Quantitative, *e.g.*, great, small, etc. (101), (iii) Physical

* I have quoted this admirable summary and exposition of the Phaedo (102C—E) from Professor Stewart's 'Plato's Doctrine of Ideas,' p. 46.

or chemical, *e.g.*, hot, cold, etc. (103), (iv) Mathematical, *e.g.*, odd, even, etc. (103), and (v) Biological, *e.g.*, life, health, etc. (103-104).

The Republic.—In the Republic the doctrine appears in four passages.

I. 402C-D.—The 'Idea' of virtue here means the meaning or the connotation of virtue, as it did in the earliest dialogue. It is important to note the sentence—"believing the knowledge of forms (εἴδη) and their images to belong to the same art and study" (402 D). The 'Ideas' here are immanent and not transcendent; and the sensible world is definitely said to be an object of study for the philosopher, side by side with the intelligible world. I find it difficult to believe that Plato, who prescribes for the philosopher the study of the sensible world, should himself discard the sensible.

Now, just because the above passage is an evidence against the "Separatists," Professor Adam thinks that the εἴδη of this passage are not Plato's 'Ideas.' His reason for thinking this is that the doctrine of transcendent or 'separate' ideas does not appear here—although he cannot deny "that the language of Plato, if interpreted in the light of Book VII, can bear this meaning."* This is an example of what we have called the "Platonic Scholar's Fallacy." Zeller,[1] we may note, takes the εἴδη here to be that Platonic "Ideas," as indeed do "many other critics," as Professor Adam admits himself.

II. 476A–487 A.—"Each of them (absolute beauty, deformity . . . and all general conceptions [παντων τὸν εἰδων] —*i.e.*, the εἰδη) in itself is one thing, but by the intermixture with actions and bodies and with one another, through which they are made visible, each appears to be

* Cf. Adam's Republic, Vol. I, p. 168, Note on 402C.

[1] Cf. Zeller's Plato and the Older Academy, p. 274.

many things" (476A)." The objects of *knowledge* are the "Ideas," "permanent," "immutable," and "real," while the multifarious, changing particulars of sense become the objects of *opinion*. Opinion is the knowledge of sensible particulars without reference to the "Ideas."

In this passage we get a sharp distinction between the Idea and 'appearance,' and between knowledge and opinion. The Idea, as one point of view, is 'separate' from any particular instance in which it is taken, but this does not mean any real separation. That the Idea is a point of view taken in science is clear from 484C, where Plato speaks of the philosopher as "possessing a distinct exemplar"—we may say, a perpetual standard of reference from which to look at particular cases. This point of view, or the "exemplar," is not a thing like the particular things with regard to which it is taken. This will become still plain in the next passage (*i.e.*, 502—518).

It may be noted here that Plato uses three words to represent the relation between the particular and the Idea. They are (i) "intermixture" (κοινωνια=Commonness), (ii) 'likeness' and (iii) 'sharing.' As to the 'communion' of Ideas with themselves and with the particulars of sense, we shall speak later in connection with the logical dialogues. Here it may be enough to note that it is their 'Communion' with one another that makes their 'Communion' with the particulars possible. Only Ethical Ideas are enumerated by Plato in the above passage.

III. 502—518.—This is one of the best and fullest accounts of Plato's doctrine and as such we shall have to examine it at some length. Throughout this passage, the passage of the Phaedo (97—107) must be kept in view.

What are the highest subjects?—is the question (504). It will be easier to understand Plato, if we shift the order

of his answer and begin first with the distinction between the four grades of cognition and the appropriate objects of each. This is expressed in the famous simile of the 'divided line' (509E—510B). Take a line and divide it into two unequal segments, the upper representing *intelligiblia* and the lower *sensibilia*. Divide each part again into two segments in the same ratio. Thus we get an inferior and a superior form of opinion and of knowledge respectively—the inferior in each case standing, in respect of truth and certainty to the higher, in the same relation in which 'Opinion' as a whole stands to knowledge. The lowest type of cognition or the inferior type of 'Opinion,' Plato calls εἰκασία [cf. εἰκονες = images]. It is the state of mind in which we cannot distinguish the shadows in water and the images in dreams from real physical objects—it is a state when we mistake shadow for substance. A truer and more developed form of cognition is πίστις (belief), a state where we can distinguish the sensible existences from their shadows. Although we do not as yet possess universal and valid scientific truths, yet we have fairly coherent and trustworthy convictions about the sensible objects. This is all that the senses can give us. Next we pass to the lower grade of Science which Plato calls διάνοια (understanding), and this is the knowledge of Geometry and the kindred arts (511A)—*i.e.*, mathematics as commonly studied. Being 'science,' they study concepts of a rational kind. They use the models and diagrams, which are realities for 'Opinion,' as mere images of the higher realities which are the proper objects of their study.

But there are two defects in Mathematics. It uses sensible forms, even if only as an aid to imagination; and it makes use of assumptions which it has not proved, and notions which it has not defined. Hence, there must be a higher realization of the ideal of knowledge. This is given by what Plato calls Dialectic, which is concerned with the

Ideas and which the soul pursues without the help of sensible things. This is the fourth segment,—the state where reason contemplates the Ideas as such.

The process of Dialectic is twofold—one of 'analysis' or induction and the other of 'synthesis' or deduction. Dialectic starts from the assumptions of the special sciences, ascends upwards and after reaching a "first principle of everything" returns in regular gradation to the knowledge of its consequences, proceeding throughout from Ideas to Ideas, without the aid of anything sensible (*vide* 511B). The assumptions of the sciences have only hypothetical validity. The dialectician has to compare these principles and thus to arrive at some still more ultimate principle, which is "not hypothetical" (511B); but is a self-evident axiom. When he has reached this first principle, he will turn as many assumptions of the special sciences as are retained into demonstrated truths—"Ideas."

Let us connect this passage with the passage in the Phaedo (97 – 107) in order to be able to understand it fully. In the Phaedo it was said that the true cause of everything in nature is that "it is best that things should be so," and this is the *ultimate cause* without which the cause will be no cause. The true cause or the sufficient reason of everything is the Good. This same thought appears here. The particular laws of the special sciences, we are told, derive their validity from the first principle, which is *clear* and *distinct* and this is the test of its validity (511E). [Cf. the categories of Kant, for which the ultimate proof of validity is that you cannot think them away. Also compare the assertion of Descartes that "clear and distinct ideas must be true."] Dialectic is the *Scientia Scienterarium*, and the first principle is the ultimate system of knowledge and reality. The assumptions of particular sciences are valid only if they can form the integral parts of this reality. The first principle says Plato, is the Form of the Good. Let us

follow Plato's description of the Good in the form of a digression.

[502-509] What is the highest subject of study, is, as we have seen, the question of this section. Socrates says, "you have been *often told** that the essential Form of the Good is the highest object of Science" (505A). Now what is the Good?

It is not ἡδονή and φρόνησις. So much has been proved in the Gorgias, as also the fact that it is "the end of all our actions" (505E). Socrates says that he cannot give a scientific definition of it, but can only describe it in images and similitudes. He will only hint at it. The Idea of the Good, he says, is to the world of Ideas what the sun is to the sensible world. The sun has a double function in the sensible world. It is the source of light by which the sight sees the sun itself and everything else, and it is also the cause of the growth and vitality of all things. Similarly, in the world of Ideas, the Good is at once the source of knowledge to the knowing mind and the source of reality and being to the objects of its knowledge. And all the time, just as the sun is not itself light or growth, so the Good is not itself being and truth, but the transcendent source of both.

We here find that Socrates does not give a description of the Good, but only hints at it in metaphors, and Plato does the same in the VIIth Epistle (341C—E). The object here cannot be fully grasped: it comes to the soul in a blaze, as Plato says in one of the Epistles. The point here can be easily grasped. The Good is the source of being and knowledge. Since being is the object of knowledge, the Good is not the object of knowledge—one among other objects. It

* Jowett says that the Idea of the Good is nowhere mentioned in Plato's writings except in one passage in the Republic. We have already seen it mentioned in certain dialogues and especially in the Phaedo, and shall see it re-appear again in the dialogues which follow the Republic. At any rate, is not Jowett's statement contradicted by the above words of Plato?

is not known, as laws, the Ideas subordinated to it, are known, in relation to one another. The Good is not the object of understanding, as Kant would say; but, like God and Soul, of pure reason. It is the ideal of the system of laws, which is the fundamental basis of the interpretation of nature —it is the *ideal*, not the *actual*, at least for knowledge.

Now to return to the point from where we had digressed. Taking together the description of Dialectic and the Good, we may say that the recognition of the Good as the supreme source from which the Ideas derive their being (or as the first principle from which the assumptions of sciences derive their validity) means that " the whole body of scientific laws forms an organic unity in which each member is connected with the rest teleologically by the fact that some of them point forward, or logically lead up, to it, while it in its turn leads up to others."*

IV. Bk. X. 596A—598E.—The discussion of the Ideas comes here in connection with the discussion of " Imitation," and it must be noted that *therefore* Plato here uses the word '*imitation*' to denote the relation between the Idea and the physical thing.

There are three kinds of things—(i) the " Ideas," which no manufacturer makes (596B), (ii) the thing—a bed or table—which a human manufacturer makes by looking to the Idea (596C), and (iii) the imitation which the painter produces by copying, not the Idea but the sensible object (596C—E). Thus we have—(i) an abstract essential bed made by God, (ii) the bed made by the carpenter, and (iii) the bed made by the imitator. The Idea made by God, which the manufacturer

* This is probably a quotation from Prof. Taylor, but I quite forget from which book or article.

[*N.B.* About the intermediate position, between sense and reason, assigned to Mathematics, we shall say something in connection with the Philebus, the Timaeus and the Epinomis. For the present we proceed to consider the fourth passage of the Republic.]

copies, is a *need* in human life. The need is closely connected with human nature and is a part of it; and therefore it is not made by man [cf. 601D—602B: "The user will possess science on these points"—and other expressions like this]. Here the Idea is described as a *need* or *use*, which sense we have discussed in connection with the Cratylus.

This point is to be noted together with the point that the Idea is not a thing just like other sensible things; but it is the rule according to which (596C) or the cause for which (601D), *e.g.*, the bed is made. If it were just like sensible things, the τριτος ανθρωπος argument would apply—there would be two of it, "a single bed would again have made its appearance" (597C). Here the Ideal is a *unique* something, not just like sensible things.

In the tenth book of the Republic, we must note, Plato enumerates Ideas of objects belonging to the *inorganic* world. In fact, we have seen by this time that there are Ideas for everything, and have seen Plato himself enumerating them.

The Critical Dialogues.—Leaving the Phaedrus, the next dialogue on the list, as almost solely concerned with the æsthetic side of the doctrine, we proceed to the "critical dialogues," as Prof. Burnet calls them. His order would be—the Theaetetus, the Parmenides, the Sophist, the Statesman, the Philebus, the Timaeus, the Critias and the Laws. In these dialogues the logical interests are to the fore. Plato turns away from his original problem, of the relation between the particular individual and the intention of the class to which it belongs, to deal with further questions of Logic and Epistemology. This does not, however, mean that Plato has abandoned, or come to make serious modifications in, his doctrine—as has been maintained by many critics. In addition to what has been already said and what shall be said on this point in connection with the examination of the dialogues, we put forward two important points as evidence for our position: (i) the familiar doctrine re-appears in

the Timaeus and is recognized in the Laws, and (ii) there is no hint of such a change in Aristotle who, hostile a critic that he is, would have seized upon this fact if he had known it. In fact there is no distinction between an earlier and a later Platonism. The theory of predication and the categories has been present all along in Plato, as we have seen it hinted at in various dialogues—especially in the Cratylus and the Republic (453-54). The germs of the theory were present in Plato from the very beginning—it is only when the earlier dialogues have cleared the way that these germs develop into fuller statements and discussions of the logical dialogues. And precisely because the earlier dialogues have fully dealt with the Ideas as concepts and points of view, they are not described as such at any length in the later dialogues. The Republic has given a final exposition of this side of the doctrine ; and obviously no good can come out of unnecessary repetition, which will be nothing but hindrances in the solution of more subtle logical problems ; and the two, if mixed, will make the whole thing confused and complicated. After these logical problems have been separately solved in the logical dialogues, the two doctrines are mixed up and discussed together in the latest dialogues.

The Theaetetus.—To begin then with the Theaetetus. The question of the dialogue is, " what is knowledge ?" and " how is knowledge possible ? " (146A). " The purpose of the Theaetetus is to clear the ground by showing that knowledge cannot be identified either with sensation or with thought" (Burnet—Gr. Ph., p. 237). Special pains are taken by Plato to deny the claims of sensationalism (Heraclitean-Protagorean theory) as giving a sound explanation of knowledge.

The first answer given by Theaetetus is—" knowledge is perception " (151E). This doctrine is at bottom the same as that of 'perpetual flux' or the *homo mensura* theory of Protagoras (152C). The Protagorean doctrine is first

examined by its legitimate results and then connected with the 'perpetual flux' of Heraclitus. It is shown that on this principle error is impossible and objects of dream, etc., all become real. Moreover the principle cannot be extended to the future. Even if we grant that things are at present what they appear to us, can it be true that they will in future become as we expect? "The doctrine is best refuted in this way" (179B), although the περιτροπη argument also applies to it. Now let us take into account the Heraclitean doctrine. Motion is of two kinds—change and motion in place. The 'perpetual flux' theory must presuppose both these kinds. "Since nothing is to be devoid of motion, they (the Heracliteans) must suppose that all things have always every sort of motion" (182A). Since then everything not only moves in space but also alters its state, we cannot ascribe any quality to what moves, for in the very moment of being known the quality is gone (cf. the Cratylus). Similarly we cannot speak of sensations. And if we cannot speak of sensation, we cannot speak of knowledge, for according to Theaetetus knowledge is nothing more than perception. The answer of Theaetetus was no answer, and the attempt to prove it by the theory of universal motion has only resulted in proving that all answers are equally right. In fact we cannot, upon this theory, distinguish one answer from another, for such words as 'this' and 'not this' imply fixity and not motion.

After annihilating the claims of sensation as giving knowledge by itself, Socrates goes on to "take another view of the subject" (184B—190A). A doctrine of categories is here introduced. There are certain thoughts in us common to all the senses and so they must be due to some other instrument. These fundamental thoughts—not given by the senses—are :—

(i) "Two things are different from one another and same with themselves,"

(ii) " Both are two and each of them one."

(iii) " They are like or unlike one another "—and so on (185B).

Thus we have certain 'fundamental notions' or categories. These are :

(i) Being and not Being,

(ii) Likeness and Unlikeness,

(iii) Sameness and Difference,

(iv) Unity and other numbers which are applied to the objects of sense,

(v) Odd and Even,

(vi) Noble and Base, and

(vii) Good and Evil (185D—186A).

These 'fundamental notions' are not given by the senses, but " the soul by a power of her own (αυτη δι αυτησυ ψυχη) contemplates the Universals in all things " (185D). These are notions which are essentially relative and which the soul also perceives by comparing in herself things past and present with future. The sensations we receive through the senses, " but their essence and what they are the soul decides by the review and comparison of them . . . The simple sensations, which reach the soul through the body, are given at birth to men and animals by nature ; but their reflections on these and on their relations to *being* and *use* (ουσια και ωφελια) are slowly and hardly gained. Then knowledge does not consist in impressions of the sense, but in reasoning about them,—in that only, and not in the mere impression, truth and being can be attained " (186B—D). " We must look for knowledge under the name which describes the proper activity of the soul when it is concerned with being and truth." The name of this activity is το δοξαζειν (Judgment).* Judgment

* Jowett translates it as 'opinion.' I have followed Prof. Burnet and the context of Plato. For a discussion see Prof. Burnet's *Greek Philosophy*, p. 248.

is the discourse which the soul holds with herself. When the soul has come to a conclusion and has at last agreed and does not doubt, this is called her δοξα (Judgment) [189D and 190A].

But does simple judgment in itself contain the guarantee of truth?—is it the same as knowledge? This is not so. Thought by itself will make false judgment as impossible as false sensation. To identify thought with knowledge is as objectionable as to identify sensation with knowledge. In either case of identification there will be no distinction between knowledge and ignorance, and wisdom and folly. So far it has been shown that neither thought alone, nor sense alone, can give us knowledge ; only a combination of these can yield knowledge. How they are to be combined, we shall see in another dialogue. [187A—190E].

From here to the end of the dialogue, the notions of "tabula rasa" and "bird-cage" are examined and reduced to absurdity.

Certain points are to be noted about the Theaetetus—

(i) Here we find the beginning of a doctrine of categories. Neither thought alone, nor sense alone can give us knowledge. Knowledge is possible, to use a Kantian phrase, in that the soul as the unity of apperception brings its fundamental notion to bear upon the data of sense. These fundamental notions are *a priori* and in this sense innate ; but they are realized only when applied to sensibilia (cf. 186B—D quoted above). Plato, we must remember, was not a believer in innate ideas which Locke criticized, but in those in which Kant believed. They are innate in us in as far as they are presuppositions of experience, but are realized only by comparison of the data of sense (cf. 186 B—D).

(ii) The categories are distinguished in two classes—being and value; and the list contains ethical, mathematical and logical categories.

(iii) The sensibilia are distinctly recognized as an element in knowledge. We have seen a passage [187A—190E] which proves that we can get no knowledge from thought alone. Another passage may be noted in this connection. " There is more difficulty in proving that the momentary states of feeling, ... out of which arise sensations and opinions in accordance with them are also untrue " (179C). The context shows that Socrates must recognize these *momentary states of feeling* as *real.*

(iv) It has sometimes been denied that the pure notions of the Theaetetus are the Platonic 'Ideas.' The pure notions of the Theaetetus no doubt differ from the 'Ideas' enumerated elsewhere—I mean, from such Ideas as those of courage, bed, etc. These latter are contexts and logical concepts of particulars belonging to special branches of knowledge and science, and as such they differ from the pure notions described here which are not confined to special departments, but are the conditions of the possibility of experience. The pure notions we have from the first and employ them in our scientific search for the special Ideas, at which the mind arrives after careful examination and comparison. I think, we cannot exclude these pure notions from the province of Ideas on the basis of this difference. The denial is based on a simple prejudice founded on certain pre-conceived notions about the Ideas, and the conviction that Plato had an 'earlier' and a 'later' theory. In order to support their pre-conceived views, the scholars take recourse to all sorts of things. One of these ways of getting out of the difficulty is to deny that any particular passage has a certain meaning. This results in a circular argument, as we have seen, and commits what we have termed the 'Platonic Scholar's Fallacy.' As further evidence for the view taken here we say that the pure notions of the Theaetetus are spoken of as Ideas in the Sophist (254C). So if we err, we err with Plato himself.

The Parmenides.—The whole dialogue is devoted to showing that the sensible and the intellectual worlds are not to be separated—otherwise knowledge would be impossible. The dialogue splits into two parts—(126—135A) and (135B—166).

1st part (126—135A).—In this a view of Idea is put forward by the young Socrates which is vehemently criticized and rejected by Parmenides. How is this to be explained, say the "Separatists," except on the supposition that Plato criticizes here the separate, transcendent Ideas of the Phaedo and the Republic? Prof. Burnet agrees that the theory criticized here is "precisely that of the Phaedo" [Gr. Ph., p. 255]. Let us ask what is the position criticized in the Parmenides. "The standpoint from which Socrates criticizes the paradoxes of Zeno is that of a dualism which is anything but absolute. . . . . The cardinal error of Socrates lay in the sharp and absolute severance between the Idea and the sensible world with which he started, and in its logical result of taking unity on the one hand as separate from diversity, and multiplicity on the other as divorced from unity"—this is the answer of Prof. Taylor.* That this is not the standpoint of the Phaedo or the Republic or any other earlier dialogue we have amply shown. Therefore, we cannot agree to the view of the "separatists." We think that the theory criticized here is Plato's theory as misunderstood by some pupils in the Academy, as it has been misunderstood by Aristotle, who states it and criticizes it in the same way as Plato does in the Parmenides. The question, however, is a large one and a full discussion would be tedious and lengthy. I shall here accordingly quote the conclusions reached by Prof. Taylor, which agree with the views of Zeller. This, taken with what I have hitherto said about the Ideas, will, I hope, establish the view which I advocate. "There is no disagreement," says Prof. Taylor,

* Mind, O.S. Vol. V, p. 318.

" between the Parmenides and the later dialogues generally, and the doctrine familiar from the Phaedo and the Republic. Failure to perceive the agreement of the Parmenides with the Phaedo and the Republic, or willingness to suspect its genuineness, may fairly be taken as evidence of thoroughgoing misapprehension of Plato's whole philosophy " (Vol. xii, p. 20).* This is the conclusion which Prof. Taylor reaches after a discussion of twenty pages. His discussion is wholly justified and deals with the question exhaustively, definitely and admirably. So much with regard to the theory refuted in the Parmenides.

We have to note further that it is remarked in (130E) that nothing is too base to have an Idea—even mud, dirt, etc., have their Ideas. The Parmenides shows the extension of Ideas to all departments of science, and this is the true Platonic view. That such Ideas are indispensable if knowledge is to be possible is definitely said in 135B.

Thus " the moral of the first part of our dialogue is " says Prof. Taylor, " that while there must exist Ideas as a permanent and universal element in reality if thought is to do its work, these Ideas cannot be separate or self-contained. The thought unities of which we are in search cannot exist by the side of and unaffected by the diversity and multiplicity of the sensible world " (Vol. V, p. 318).

2nd part (135A—166).—The connection between the two dialogues is put by Prof. Taylor as follows: 'As soon as we realize that Plato is constantly trying to make us understand, that the " Ideal " world simply means the real world in so far as it becomes an object for knowledge, we should have no difficulty in seeing that the problem how one " Idea " can be present to many " things " and the problem

* This and the following quotations are taken from articles of Prof. Taylor in the *Mind*, Vol. V (1896)—" On the Interpretation of Plato's Parmenides " and Vol. XII (1903)—" On the Interpretation of the First Part of Plato's Parmenides."

how one "Idea" can, while preserving its unity, enter into relation with many other "Ideas," are only two ways of raising the same question. For a thing in the only sense in which a thing is knowable, is nothing more or less than a certain system of universals, or in the Platonic phraseology, "Ideas"' (Vol. V, p. 484).

The second part is devoted to the enquiry concerning the One and the Many and the dialectical method of Zeno.

"The net result of the long and complicated reasoning is this: That if we once start with the conviction that the ultimate reality must at least be real, we are driven so to conceive of its unity as to permit the recognition of all the diversity in it" (Vol. V, p. 505).

One more remark of Prof. Taylor I cannot help quoting—"Plato in concluding the argument at 155D* asserts that τὸ ἕν, the supreme reality, can be the object, not only of full and adequate knowledge, but even of opinion and sense perception . . . Taken in connection with the attack on an absolute separation of γενεσις and ουσια in the Sophist and the Theaetetus (Soph. 244 ff and Theaetetus 155E), and the conception of γεγενημενη ουσια in the Philebus it forms perhaps the most decided repudiation possible to Plato of the doctrine frequently ascribed to him by persons whose knowledge of his system is derived from a superficial reading of the Republic, that the world of knowledge and the world of perception are two different worlds and not the same worlds more or less adequately understood" (Vol. V, p. 506). The Ideal world of Plato is nothing but this sensible world in so far as it becomes the object of knowledge. This becomes plain if we candidly study the Parmenides where Plato himself takes great pains to make this point clear. And I have said enough, in examining the earlier dialogues, in

* The passage is as follows:—"And if we at this moment have opinion and knowledge and perception of the One, then there is opinion and knowledge and perception of it" (155D).

support of this view. It ought to be quite apparent at this stage that there is no separation in Plato's philosophy between the Ideal and the Real, and any philosophy which ends by separating the two stands self-contradicted.

The Sophist.—The ostensible purpose of this dialogue is to find a definition of the Sophist, but the real object is to distinguish between appearance and reality. The Sophist is found to deal with appearances. But unless we find out the nature of not-Being, we cannot reach a definition of the Sophist. The Dualistic philosophers (the Pythagoreans) and the Eleatics are examined and found wanting. With regard to the nature of Being, the Materialists and the εἰδων φιλοι* are examined; but their answers are seen to be unsatisfactory (246—249B). But one lesson is gained from the "friends of Ideas": We should say, "Give us both, so we must include both motion and rest in our definition of Being and all" (249 C).

The problem of the nature of Being and not-Being is solved by shifting the enquiry to the sphere of Judgment. "Let us inquire, then," says Socrates (251A), "how we come to predicate many names of the same thing." It is shown that thought involves a system of categories or pure notions which have "communion" in themselves in certain ways and this "communion" is held to guarantee the further "communion" between Ideas and particulars of sense. This is the doctrine of κοινωνια εἰδων—not a new doctrine, for we have already met with it in the Republic (cf. 476A).

We cannot say that all Ideas combine with all, or that none of the Ideas combine, but that "some of them are capable and others incapable of admixture." Then we require

* As regards the identification of the "Friends of Ideas," there really has been "a war of giants and gods going on" among the scholars. I agree with Prof. Burnet in taking them to be the later Pythagoreans; for, his evidence is conclusive (*vide* his Gr. Ph., pt. I, pp. 279, 280 and p. 90 note). Who these men were matters little so long as we do not identify them with Plato himself in the earlier dialogues.

an art to tell us what Ideas combine with what. "This is the business of the dialectical science" (253D). "Let us select for consideration only a few of those which are reckoned to be the principal ones" (254C). "Only by the union of conceptions with one another we attain to discourse of reason," and "an attempt at universal separation is the final annihilation of all reason" (259E). The fundamental kinds of judgments rest on the fundamental kinds of 'conjunction' which run through all 'conjunction' and make them possible. The most important of all the genera are five: (1) Being, (2) Rest, (3) Motion, (4) Same, (5) Other. Of these (2) and (3) do not combine with each other, but both combine with (1), while (1), (2) and (3) is each same with itself, *i.e.*, they combine with (4), and are different from others (*i.e.*, combine with 5). Yet (4) and (5) are not identical with (1), (2) or (3) [250—254].

The result of the whole enquiry is that "every class has plurality of Being and infinity of not-Being." As Being itself is other than all the rest, we must say the Being is *not* just as many times as there are other things. "If anyone denies our present statement [*viz.*, Being is *not*, etc.] let him agree with our former arguments" (*i.e.*, respecting κοινωνια ειδων) (257B). Now the being of not-being has been proved and error is found to be in the wrong communion of Ideas in a judgment. We have seen that "the negative particle, ου and μη when prefixed to words do not necessarily imply opposition, but only difference from the words, or more correctly from the things represented by the words which follow them" (257B). Thus the ostensible purpose of the dialogue is achieved together with its real purpose.

The outcome of the Sophist, then, is (i) to give a full exposition of κοινωνια ειδων and (ii) to show that an absolute separation of form and matter or Ideas and Sensible things is fatal to knowledge. "The attempt at universal separation is the final annihilation of all reason; for only by the union

of conceptions with one another do we attain to discourse of reason" (259E). We have also learnt a lesson from the 'friends of Ideas.' Motion and difference are real. Being, if it is constant, cannot act or be acted upon—it will remain always in perpetual 'fixture.' If we know Being, knowledge implies soul and soul implies motion (248-49). Here we get a very important point in Plato's doctrine, which has been very clearly expressed. The Ideas, because they are Being, are expressions of force, a force inherent in the soul. Apart from the soul the Ideas cannot be real (cf. 248E—249C). This is strong evidence against those who say that Plato substantiated concepts. And this, we should note, is not a new doctrine of the Sophist (cf. especially the Theaetetus 185D quoted *ad loc*).

Another point to be noted is that in the Sophist the terms "Ideas," "notions," "genus," "concept" and "class" are indifferently used as convertible terms; and so we can have no difficulty in taking the term γενη in the Theaetetus as convertible with the term "Ideas." In fact the terms γενη and ειδη are identical in Plato, and "it is too well-known to need any proof" says Prof. Taylor in this connection (*Mind O.S.*, Vol. V, p. 309).

The Statesman.—The purpose of the Statesman is to find the definition of the statesman. But "Our enquiry about the statesman is intended to improve our knowledge of philosophy in general" (285D). The dialogue contributes to the doctrine by insisting on the recognition of a *definite standard* as the characteristic of the true statesman (283C—285C). It was said in the Republic that the statesman should possess in his soul a "distinct exemplar," and accordingly when Plato deals with the definition of the statesman the *paradeigmatic view* of the Ideas is prominent. This is an illustration of the remark that we made in the beginning, *viz.*, that Plato brings in only so much of his doctrine in a particular dialogue as is needed for his purpose at the time.

"If we assume the greater to exist only in relation to the less, there will be no comparison of either with the mean. This doctrine would be the ruin of all the arts and their creations . . . . for the excellence and beauty of every work of art is due to this observance of the measure. If there are arts, there is a standard of measure and *vice versa*, but if either is wanting, there is nothing. Thus the art of measurement splits into two parts—(i) arts which measure number, length, depth, breadth, and swiftness with their opposites and (ii) arts which measure these with the mean, the fit, the opportune and the due—the Ideal Standard" (284A—D).

This second kind of standard the statesman should have in his soul, for statesmanship is an art; and arts without referring to a standard would be impossible. This standard is the ideal of statesmanship.

[Another logical interest of this dialogue, as well as of the Sophist is, we may note by the way, that they give prominence to the process of exhaustive logical division of a class into its sub-classes, as a means towards exact definition.]

The Philebus.—A controversy arose in the Academy between Speusippus and Eudoxos, says Prof. Burnet, as to whether pleasure was the good; and Plato did what he had not done for many years—he wrote a Socratic dialogue on the subject. As we have seen, Plato has discussed the same subject in other dialogues; but now the Parmenides and other logical dialogues are before him and the metaphysical prolegomena to Ethics are bound to be bulky. Accordingly we have two interests in the dialogue—logical and ethical.

"Pleasures may be very unlike and even opposite, so that we cannot apply the same predicate to all of them. To decide this we must solve the old question of One and Many" (14B). The difficulty of the predication of opposite attributes and the relation of whole and parts in

the sensible things are mere childish questions and have been long settled. This question, we may say, has been settled in the Parmenides and elsewhere; and now in the Philebus, the question is raised of the difficulty of the One and Many in the sphere of Ideas. "The real difficulty is," says Socrates, "when the assertion is made that 'man is one' and 'ox is one,' or 'the good is one' or 'the beauty is one' and the interest which attaches to these and similar unities and the attempt which is made to divide them gives rise to a controversy" (15A). The difficulty, in short, is how these notional unities are at once 'One's' and 'Many's' and how they participate in the sensible things.

All predication involves one and many, and this is "an everlasting quality of the thought itself" (15E). Regarding this we must establish a sound theory. The method to do this is a way of which Socrates has been a lover, "and which is the parent of all discoveries in the arts" (16C). The method is that of Dialectic. "All things of which we say 'they are' draw their existence from the One and Many and have the finite and the infinite implanted in them" (16D). Now the art of dialectic goes through the steps between the limit and the unlimited and catches hold of the number which is intermediate between the Limit and the Unlimited (17). "He who begins with an individual unity, should from that proceed not to infinity but to a definite number, and conversely he who begins with infinity should not jump to unity, but he should look about for some number representing a certain quantity and thus out of all end in one" (18A). The Eristic method, on the other hand, jumps at once from the limit to the unlimited and *vice versa*, and this is precisely where it differs from the dialectic.

The possibility of the dialectic which deals with the One and the Many, we have seen in the Sophist, depends upon the κοινωνια ειδων—on the fact that the categories are severally unities and yet can combine with one another. And the

method of the dialectic described here is the method of ascending to and descending from the one universal law by the steps of less general laws,—the method described in the Republic in another form (cf. Rep., 511 sqq).

The ethical problem of the Philebus, in the working out of which all this is introduced, is the relation of pleasure and knowledge to the good. The relation is made clear by an examination of things as they occupy their place in a list of existing things. This enquiry, it must be remembered, takes place in the sphere of things, rather than that of pure concepts; and it is the bond between this enquiry and the previous observations that makes clear the connection between the notional realities and the corporeal things.

Let us divide, says Plato, all existing things into four classes: (i) The unlimited (τὸ απειρον). "This class includes comparatives, and the more and less, which dwells in their very nature, prevents their having an end" (24B). It has neither beginning nor middle nor end (31A): it is a process of pure change. This is the same as the Pythagorean "απειρον—"an undifferentiated mass." In fact Plato here uses the purely Pythagorean words. Plato's own name for το απειρον is αοριστοσ δυασ, as we shall see in the Sequel. Here we can safely take Plato to mean by the unlimited 'pure undetermined quality' considered from the standpoint of perfect indefiniteness and apart from all sorts of quantitative relations.

(ii) The limit (το περασ)—"Any ratio of number or measure, that is to say, first of all equality and the equal and the double, etc." (25B). "This limit by bringing the different elements into harmony creates numbers" (25D).

(iii) The mixture—"Any offspring of the union of the two that is a generation into true being, and is affected by the measure which the limit introduces" (26D). "The various opposites when you mingle these ratios in them take certain forms" (25E). The meaning is simply this: when the limit

is rightly applied to the unlimited, real conditions beautiful and harmonious arise—in Music harmony, in Medicine health, and we see the same thing in " ten thousand other things." In this are realized the good and the beautiful. This mixture is no doubt a ' generation, ' but a generation into " true being " (26D).

(iv) The cause of the mixture which is νους και φρονησις. (28D), the creative principle of the universe, το δημιουργουν (27B).

These are the four principles of the generation of the universe. " There is thus in the universe a mighty απειρον, and an adequate περας, as well as a cause of no mean power, which orders and arranges years and months, and may be justly called νους και φρονησις " (30C). But mind cannot exist without a soul, therefore there must be a mighty world-soul. The wisdom of man is but of an inferior sort in quality and beauty as compared to the ' world-wisdom.'

The Good is placed here in the fourth class—that of the cause. It is not indeed νους or φρονησις, but its elements are more clearly allied to them. Being placed in the position of the first cause, it is said to be " an incorporeal law which is going to hold fair rule over a living body " (64B). The ' living body ' here means the cosmos and Plato speaks of it in the Timaeus as a ' living animal.'

The good is said to consist in three ideas—beauty, symmetry and truth and a table of values is arranged. Pleasure is put in the class of the unlimited, wisdom in that of the cause. The table is as follows : (i) Right measure, (ii) the symmetrical, and beautiful and perfect and sufficient, (iii) mind and wisdom, (iv) sciences and arts and true opinion, (v) pure pleasures of the soul. " The eternal nature has been found in the measure, and the measured and the suitable and the like " (66A).

This is necessarily a short analysis of the dialogue, which requires more space for fuller discussion and comments. Yet we can note certain points :

(i) The whole doctrine of the measure means that science is only possible on the basis of quantitatively determined exact laws. It is the ' limit ' of quantity that gives being to the ἄπειρον of changing, indeterminate quality. We shall presently consider, in connection with the examination of the Epinomis, this whole doctrine of πέρας, its connection with the Pythagoreans, and the assertion that Plato placed mathematics between the Ideas and Sensible objects which is based on the Republic (511) and the Philebus (56B—57C).

(ii) It is to be noted that the mixed class is here said to be a *generation into true being*, and this proves that the sensible world has being. The unlimited itself, though not definite and real, is a part of the reality; for without it there can be no application of the limit, and no mixture—the generation into true being—can result. Each of the two classes, the limit and the unlimited, is real in its own region, in due measure, in its appropriate situation.

(iii) A question has sometimes been asked—to which of the four classes do the Ideas belong ? Prof. Burnet says that they belong to the class of the limit, because in the sensible world their function is to limit, but in the intelligible world they belong to the mixed class, as a " limited continuum of the One and the Indeterminate Dyad." This seems to me to be the best answer if we are compelled to give a definite answer. I am, however, inclined to think that it is a mistake to identify the Ideas with any of these four classes. The enquiry in this dialogue, as we have seen above, is carried on in the sphere of things and not in the notional region. We should thus expect to find in the classes factors that are analogous to, but not identical with, those of which the Ideas are composed and hold towards the sensible things the same relation as that held by the

components of Ideas (*i.e.*, One and the Indeterminate Dyad) to the system of things. All this will be quite plain when we have considered the mathematical bearing of the doctrine. The analogous consideration of things and Ideas, as it appears here, goes to prove the close relation of the two, and we have to note this fact.

(iv) Some observations may also be made on the notion of the Good in the Philebus. It is the first cause, ' an incorporeal law,' the system of laws as we should call it, which is the final summation of the special laws in one system. In the Ethical sphere the Good of the Philebus is inferior to the Good of the Republic. The " cup," as Plato distinctly tells us, is the good of *man*, while the Good of the Republic is the universal good. In the metaphysical sphere, however, the Good of the Philebus, considered as the first cause—made of symmetry, truth and beauty—is closely allied to the Good of the Republic which is the cause of knowledge as well as being. The Good, as made of *symmetry* and *truth*, means in metaphysics that it is the final supreme law in which all special laws cohere—this is the force of 'symmetry,' and that it is self-evident and all other laws are valid only when referred to it—this is the force of ' truth. ' We shall be able to see these points better when we come to the Timaeus. In fact, most of the questions of the Philebus can be fully discussed only in connection with what we learn in the Timaeus and Epinomis.

The Timaeus.—To discuss this dialogue in the order of the text will mean much tediousness, and the discussion will necessarily remain confused. We shall, therefore, take certain topics and discuss them subject-wise:

I. *What is the relation of the Idea of the Good to God of the Timaeus ?*—In the Timaeus we learn about God that " God was good and he desired that all things should be as much as possible like himself and so he created the world." Again that " the artificer is the best of causes."

Let us compare with this the description of the Good. In the Gorgias the Good is that "which makes things orderly" (504). It is order, system, organism, *kosmos* (506E). In the Phaedo it is the 'sufficient reason,' the real cause, the necessity, the principle of the world—"that which really binds and holds things together" (99C). In the Republic it is the cause of knowledge and existence. In the Philebus it is the cause of the Mixture, the 'generation of being' [cf. The Timaeus—the δημιουργος found a changing mass and "reduced it from disorder into order"]. In the Philebus, the Good is called 'the cause,' but the cause is also spoken of as το δημιουργουν. To the above statements may be added certain passages, from the Epistles: (i) "The *God* who is ruler of all things present and to come . . . . to certain knowledge of whom, if *we genuinely practise philosophy*, we shall attain as far as it lies in the power of the human beings" (Ep. VI, 323D) [cf. Rep.—'The Good is the aim of the dialectic]. (ii) In the seventh Epistle it is said that the first principle is not an object of knowledge, but an object of intuition after hard practice in virtue. (iii) In the second Epistle the notion of the first principle is described in riddles, so that he who reads it may not understand. Mr. L. A. Post says in the notes to his translation of the Epistles (p. 142, Note 10), that Plato "feared that an explicit statement of his monotheism . . . . would give his opponents a pretext for denouncing him on the same charge that had proved effective against Socrates and others." The first principle spoken of in a riddle in the Second Epistle is "the king of all and on his account all things exist" (312D).

Taking all this into account, we deduce the result that the Good and God are one in Plato, or at least two expressions of the same reality. This view differs from Professors Burnet and Stewart and it agrees with Zeller, Adam and,

as Adam remarks, ' with most of the scholars.' One objection of Prof. Burnet must be considered at this place. "The good," he says, "is a 'form'; while God is a person." It must be said, however, that in Plato's mind the scientific conception of the system—the goodness, symmetry and orderliness of the Universe—and the religious convictions of a personal God interpenetrate each other. As Prof. Adam puts it, "Knowledge is for Plato the epistemological counterpart of Being and Being the ontological counterpart of knowledge." Plato's whole philosophy, we must remember, is teleological to the core. The ontological principle of teleology is God, as Plato himself more than once tells us. "The universe is not left to the guidance of unreason and chance medley; but is ordered and governed by marvellous intelligence and wisdom" (28D). This is a typical sentence from the Philebus and similar sentences can be multiplied from the various dialogues. On this basis Plato regards the cosmos as a reign of laws, in which order prevails—and this is the presupposition of knowledge. In fact the fundamental postulate and basis of Plato's philosophy is that knowledge is possible because the world-process is reasonable. Accordingly, Plato speaks of a system of laws or "Ideas," descending up and finally uniting in the form of the Good. When Plato is talking in the sphere of Metaphysics, Logic and Ethics, where the whole talk is carried on about scientific laws, Ideas, or Forms it is natural for him to speak of the 'Form of the Good'; but when he comes to Physics and the creation of the world in the Timaeus, the great ontological postulate, God, appears. Then what is He? One who is *good*; and creates the Universe because He is good. If, in spite of all that has been said above, it is still asked—how can a Form be a person, we should put another question in reply, *viz.*, how can a Form be the cause of creation and existence? Should we take the 'Form' of the Republic to be a corporeal

or a spiritual something, attributing thereby substantial existence to the Ideas?

All this goes to show that God of the Timaeus is the 'Form of the Good' of the Republic, personified. The personal God Plato knows, not by scientific methods, but by intuition (cf. Epistle VII). Nevertheless he must postulate God as the final support of Ethics and the cosmic-process. And in this light we must understand Plato's language in the Republic—"the Good is not the object of knowledge." God, as the object of intuition, will be the object of contemplation and not of scientific knowledge.

II. *What is the relation of the God of the Timaeus to the Ideas?*—In the Republic (Bk. X, 597B), God is the creator of Being and of the Ideas. In the Timaeus it is said that "the eternal Deity, after due reflection, conceived the form of the god about to come into existence." (By 'god' is here meant the world.) Again it is said that "the whole composition of the soul had been completed according to intentions of God who framed it." All this goes to show that the Ideas are thoughts in the mind of God; and as Prof. Stewart says, "it is a view of the relation of the Ideas to God which afterwards prevailed in the Platonic School." But, protests Prof. Stewart, such a view is erroneous, "although there is nothing against it." Prof. Stewart, and those of his view, obviously look to the following sentence in support of their view: "It is evident that He looked to a pattern that was eternal." The Ideas, they say, are "the patterns" according to which God creates sensible things; and therefore the Ideas must be regarded as independent of God. I should say that the above sentence is simply a form of expression for the statement that the Universe has been made by God according to regulated laws, which are the same and patternlike in view of their unique appropriateness and beauty. The very next sentence is an evidence of this interpretation. "Being thus

generated, it has been made according to principles that can be comprehended by reason and reflection, and ever abide in sameness of being." In short, the expression that God created the Universe according to the pattern of the Ideas, simply means that He created it according to law, order and reason.

It must not be understood, however, that because the Ideas are thoughts of God, they are in any way *subjective*. By thoughts in his mind is simply meant that they are inherent in the nature of his actions and nothing more. In fact here there is a difficulty of expression, but the sense is plain enough.

III. It has been held by Dr. H. Jackson and others that Plato only retained the Ideas of "natural kinds" in his "later theory." We have been at pains, in our examination of the dialogues, to show that there are Ideas wherever anything is to be explained scientifically. If we have shown this successfully, the view of these scholars would simply mean that Plato in his later life left the Ethical sphere as impossible to be explained scientifically. And such a notion can be anything but correct. Plato confines himself to the enumeration of the Ideas of 'natural kinds' only in the Timaeus for the simple reason that the dialogue is concerned with the physical and the biological spheres: and, as we have shown, Plato brings in only so much of his doctrine at a particular place as is needed. At any rate, he is not bound to give a full catalogue of the Ideas wherever he mentions them.

IV. In the Timaeus a rather sharp distinction appears between the Ideas and the sensible things. They are spoken of as two classes of being and at first sight the classes appear to be rather sharply distinguished. But the two elements of unity and plurality (or sameness and otherness) appear in the Ideas as well as in the sensible things, and it is said that human souls can apprehend the Ideas because

these souls, as well as the world soul, with which they are identical in substance and essence, contain the same two elements—the same and the other—as are found in the Ideas themselves. This fact connects the Ideas and the particulars very closely, as we have seen in the Philebus. The connection between unity and plurality is a fundamental conviction of Plato and there is nowhere the world of Ideas as unity standing over against that of particulars as plurality. "For the right understanding of Plato it is most important to realise from the first," says Prof. Taylor, criticizing Mr. Benn in the Mind, "that antithesis between a period of 'transcendent' and another of 'immanent' Ideas in his philosophy is a false one. If you mean by the "transcendence of the Ideas" no more than that it is asserted to be other than the objects of sense and differently apprehended, then transcendence is taught in the Phaedo and the Republic, but it is equally taught, and on precisely the same grounds, in the Timaeus. If you mean anything more than this, it is not taught anywhere in Plato" (*Mind*, Vol. XII (1903), p. 3).

The Laws.—There is nothing new concerning the doctrine of Ideas in this dialogue. They are mentioned in 961A-968A, are emphatically maintained there, and it is remarked that "never has been a truer method than this discovered by any man" (965C). It is interesting to note that in this as well as in the earliest dialogues, Plato dwells on the Ideas of morality only—here, I think, simply because he is discussing social questions. Not less interesting to note is the remark of Jowett that "no mention occurs in the Laws of the Ideas of Plato" (Dialogues of Plato, 1st Edition, Vol. IV, Int., p. 110). What this remark means in face of Plato's definite statements, I am at a loss to understand.

The Epinomis.—Under the head of this dialogue we shall consider the relation between the Ideas and Numbers,

There is a very short relevant passage in this dialogue; but that, taken together with the doctrine of the Measure in the Philebus, the formation of the world-Soul in the Timaeus, and the evidences of Aristotle, may perhaps give us some clue to the oral teachings of Plato (the 'unwritten dogma,' as Aristotle calls them), in which Ideas were identified with numbers and of which no traces, other than what we have enumerated above, are to be found in the dialogues.

To begin with, we must first recollect what was said about the Pythagorean doctrine (*vide* § 3 above). They had, we have seen, first identified sensible things with numbers, but later had changed their doctrine in view of Zeno's criticisms, and had said that things were *like* numbers. The numbers, they further said, arise out of the application of the πέρας to the ἄπειρον, and that this application was the cause of the existence of the world.

Now let us see what Aristotle has to say on this point. In Metaphysica 987B he says: "Only the name 'participation' was new; for the Pythagoreans say that things exist by 'imitation' of numbers and Plato says they exist by participation, changing the name . . . . Further, besides sensible things and Forms, he says there are the objects of Mathematics, which occupy an intermediate position, differing from sensible things in being eternal and unchangeable, from Forms in that there are many alike, while the Form itself is in each case unique. Since the Forms are the causes of all other things, he thought their elements were the elements of all things. As matter, the 'great' and the 'small' are principles, as essential reality the 'One'; for from the 'great' and the 'small' by participation in the One come the Forms, *i.e.*, the numbers . . . . Positing a dyad and constructing the infinite out of great and small, instead of treating the infinite as one, is peculiar to him." We further learn from Aristotle that the 'Ideal numbers'

were distinguished from the mathematicals and that they were 'unaddible.'

Now we come to the Epinomis. In the Laws a nocturnal Council had been instituted (cf. 960 seqq.) to form the anchor of the State. These men must be the most wise. The question in the Epinomis is—how to educate them so that they may become the most wise. After taking into account all the sciences, it is found that "the person who is truly an astronomer, is necessarily the most wise." We may ask here, 'what is the wisdom in Astronomy?' For an answer we have to turn to the Timaeus. "God invented and bestowed sight on us for this express purpose that . . . . we might by imitating the uniform revolutions of divinity [*i.e.*, the heavenly bodies] set aright our own silly wanderings and blunders . . . . We know from sight the phenomena of nature, from all which we have gained the kind of learning termed philosophy, a better gift than which never was nor will be conferred by the gods on our mortal race." This quotation will suffice to show what importance Plato attached to Astronomy and from what point of view he looked at it. But the art of number is preparatory to astronomy. Thus a knowledge of number is of the greatest consequence (cf. The Rep.). "If we abstract number from other arts nothing will remain, they will entirely perish" (Epinomis) [cf. The Philebus 56-57, etc.]. "If we take away number from human nature, we should be intellectual not at all. Rythm, harmony, reason, order, music originate from it and true opinion respecting the good, the beautiful and all such things are got through number . . . . On this account there would be a need of Mathematics, but the greatest and the first need is that of numbers in the Abstract, and not of such as are connected with bodies, but of the whole generation and power of the even and the odd, so much as they contribute to the nature of things that exist" (The Epinomis) [cf. the distinction between pure and sensible mathematics

in the Republic and the Philebus]. The stranger (the chief person of the dialogue), goes on to develop his theory of numbers—to be studied in the abstract and with a view to their generation—in words which, in the rendering of Mr. Cary, are anything but intelligible. Prof. Taylor says, in the original it "defies all formal grammar."* He has contrived, however, to derive some sense out of it, and we should try to solve the difficulties of the previous dialogues by following his translation as closely as we can. To come, then, to the text of the Epinomis, "We shall need . . . various μαθηματα, first one which deals with numbers, not as embodied in anything, and studies the generation of the odd and even and the character they impart to nature. Next we must study what has been ludicrously called γεωμετρια, but is really an art which assimilates to one another *numbers* which are not similar in their own nature, by reference to surfaces (or areas) . . . . Then comes another art which deals with *numbers* "raised to the third power and similar to volumes," and once more makes similar a second class of numbers not actually similar. This is what the inventors who first hit on it called στερεομετρια." (*Mind*, Oct., '26, p. 426). We have only quoted the first half of the passage, which will suffice for our present purposes.

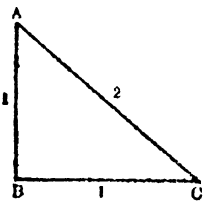
Now let us see what we can draw out of all this.

(i) The numbers are to be studied pure—not embodied. What is this pure form? In the Philebus we are told that the philosophic mathematicians insist that "every

* *Mind*, October, 1926.—'Forms and Numbers.' Form this place to p. 252 I have derived much help and guidance from this article of Prof. Taylor. My special debt to him lies in the section on the Origin of Ideal Numbers. In the rest of the discussion I have only got a clue from his article. The 2nd part of this article appeared in January, 1927, after this essay had been written. If, therefore, some expressions and conclusions of this section bear a similarity with those of Prof. Taylor in the 2nd part of the article, I must be understood to have worked independently, and arrived at the conclusions for myself.

unit in ten thousand must be the same as every other unit" (56E). In the Epinomis it is said that γεωμετρια is a ludicrous name, which clearly implies that it has nothing to do with the μετρον of γη, but that it has to be studied in form of arithmetic for the purpose of finding out certain numbers. All this means that, though there may be many things which are 'two's,' there is only one 'two.' The sensible two things are made up of two one things but the number 2 as abstract is not two 1's but one 2, and it does not contain any 1's. This is why, as Aristotle tells us, 'numbers' cannot be added.

(ii) Next, we have to see what are the 'Ideal numbers.' The passage above tells us of the generation of two kinds of numbers—one by the art of 'Geometry' and the other by the art of 'Stereometry.' Prof. Taylor shows in his article mentioned above, that the age of Plato was busy with the 'diagonal problem' and the Delian problem. The 'diagonal problem' is just this: In a right-angled isosceles triangle if the side AB=BC=1 unit of length, the side AC will be $\sqrt{2}$ (by 49th proposition of Euclid). This is one of those irrational numbers which could be solved in the sphere of geometry. The Delian problem was that of finding the side of a cube whose volume is double that of a given cube. The formula for this is as follows: If the side of a given cube is 1 unit, its volume would be 1 cubic unit. The volume of the cube which is its double will be 2 cubic units, and its side will be $\sqrt[3]{2}$. This is another kind of 'irrational' number which is solved in the sphere of 'stereometry.'



Now we are in a position to see what is meant by 'real numbers' in the passage of the Epinomis. We may say that by real numbers Plato meant the quadratic surds, *e.g.*, $\sqrt{2}$, $\sqrt[3]{2}$ and so on. Of course the full theory of quadratic surds was not known in those days, neither was it known

how these could be evaluated outside the sphere of geometry and stereometry. For purposes of convenience and reference we may take the ideal number to be $\sqrt{2}$ or π (the relation between the circumference and the diameter of a circle, which is fundamentally a surd and an irrational number.)

(iii) Now we proceed to consider the origin of these ideal numbers. The Pythagoreans said, we have seen, that they originated from the application of the one to the unlimited. Plato, as Aristotle tells us, changed the word 'unlimited' into the 'Dyad of the Great and Small.' Let us take the familiar example of $\sqrt{2}$. It lies somewhere between 1 and $\frac{1}{2}$. If we say that it lies in the unlimited between 1 and $\frac{1}{2}$ as the Pythagoreans did, it would not suffice for a dialectical analysis like that advocated in the Philebus (18A). We must not attribute unity to the many or the many to unity simply; but we must determine the intermediate stages and thus reach at numbers. Let us now see how this applies to the evaluation of $\sqrt{2}$. The value of $\sqrt{2}$ is unlimited; but by an unending continued fraction we can "pin down $\sqrt{2}$ between two values." For example, we know that it is more than 1 and less than $\frac{1}{2}$. If we make a series of fractions ascending upwards from 1 and increasing by degrees and descending downwards from $\frac{1}{2}$ and decreasing by degrees, we shall approach $\sqrt{2}$ from two sides one greater and the other less. The difference in evaluation will go on decreasing and finally when the difference will become zero, we shall have reached the value of $\sqrt{2}$.

Here we find that in approximating to $\sqrt{2}$ by this method we are approximating to a "limit" from two sides—a great and a small. This is why Plato changed the Pythagorean ἀπειρον into a 'great and small' and this, we see, is a double process, and therefore is a 'dyad.' Thus we come to the conception of the Dyad of the great and small. The fraction, moreover, will yield rational numbers at every step. This is what is meant by the generation of numbers from the

one and the Dyad of the great and small. This dyad is 'unlimited'—or, in Aristotelian terminology quoted above, 'matter.' It is the unrationalized element in 'number.' Now in the series since we are limiting it from both sides it is growing less and less unlimited. It would come to rest in a complete 'equality,' if we could bring the difference between the two values of the series to zero. But this cannot be done. We might say, in the language of Plato, that the number tries to be one, but it cannot.

Now we can come at once to the consideration of the Ideas.* If they are numbers, as Aristotle says, they must be constituted by two elements—one definite and the other indefinite. In the last resort the concepts or definables of sciences all presuppose two primarily indefinite notions—that of unity (not the integer 1), and that of plurality (not any definite number). It may be said that every concept arises out of a special mode of combination of these two components. Let us consider the character of any definition, *e.g.*, a triangle. It is a closed, three-sided, rectilineal figure. The class so defined is on the one hand one term or object of thought—a definite aggregate of a specific class concept—; on the other hand, it is a plurality made up of common parts of other aggregates. Since the objects of definition are always combinations of the one and the many—the one and the many of which they are combinations being not the integer 1 and the series of whole numbers, but the simpler and prior logical concepts of 'a term' and 'terms'—we can see why Plato called Ideas 'numbers,' but at the same time distinguished the primary ideal numbers from the numbers of the integer. And the same elements, which constitute the Ideas, constitute the whole world for Plato. We can

* In what follows I am independent of Prof. Taylor's article mentioned above. My general indebtedness to him, however, is immense, and by this statement I do not in any way mean to underestimate it.

compare here the formation of the world-soul in the Timaeus from the same and the other ; and the generation of the mixture in the Philebus from the limit and the unlimited. The ' same ' of the Timaeus and the ' limit ' of the Philebus are analogous to the ' one ' of the conceptual region, while the ' other ' and the ' unlimited ' are analogous to the dyad of the great and small— and thus the Ideas are analogous to sensible things. It is, I venture to suppose, from this common nature in the essence of both—the Ideas and sensible things—based on the law of numbers, that the number becomes the mediating link between the two. It would not be too much to say that Plato thought of the universe as forming a system exhibiting that character of precise and determinate order and law of which we find the ideal type in the interconnected concepts of a perfect deduction of science. Like most philosophers, Plato regarded arithmetic as the most perfect science ; and if we be allowed a crude phrase, we may say that he aimed at ' *arithmeticizing* ' the whole universe. " God geometrizes "—is his usual phrase; and it might be said with sufficient truth that he wanted to find out the principles of this ' divine geometry.' In other words, he wanted to view the whole universe as a system of laws and, so far as possible, wanted to determine these laws mathematically. The Ideas are numbers, but only because numbers result from proportion and order, which are the laws of the universe. If the universe is a perfect system of laws, it is not too much to say that the scientific points of view—the Ideas—are numbers. Pure quality is indeterminate : to be ascertained definitely it must be viewed from the point of view of quantity.*

* [*Note.*—In this section I have ventured to explain Plato rather freely—simply to make clear certain very subtle points about which it seems impossible to give any accurate and precise account. The precise truth about these points must perhaps always be unknown owing to the meagre ancient literary evidence. So much, however, can be said with certainty that something like the above was at the back of Plato's mind.]

The Aesthetic Dialogues.—Having finished the examination of the logical dialogues, we now come to the dialogues which we postponed for a joint examination. These are the æsthetic dialogues, *viz.*, the Symposium, the Phaedrus, and parts of the Meno and the Phaedo which deal with the mystical side of the doctrine of Reminiscence and the Soul. That the doctrine of Ideas has two sides, of which the æsthetic side demands a psychological explanation, has been rightly protested by Prof. Stewart in his 'Myths of Plato.' Prof. Burnet agrees to this in his Greek Philosophy, Part I (p. 168), and says in the introduction to his edition of the Phaedo: "In certain dialogues the Ideas are regarded as objects of ecstatic contemplation, and appear to some extent in mythical setting. The Idea of ecstatic vision is most prominent in the Symposium and the Phaedrus, that is to say, in just those dialogues where Plato's dramatic art is at its best." But he adds: "The soul of the man who stood transfixed in silent brooding thought for twenty-four hours in the camp at Potidaea is surely the soul to which we must look for a psychological explanation of the vision described in the Phaedrus" [*vide* Int., p. 98]. Professor Burnet thinks that the æsthetic side of the doctrine belongs to Socrates and not to Plato. Be that as it may, we are only concerned here with the fact that this side does appear in certain dialogues and that if we mistake it for logic we are bound to misunderstand the whole thing. The object of mystic presence, which the Ideas become in these dialogues, is characterized by two things: (i) it cannot be expressed, it is strictly personal and (ii) that for the mystic it is sensible and is all truth and reality.* Accordingly it is very difficult to understand Plato here. Nevertheless

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*These are the characteristics of the object of mystic presence, described by William James in his 'Varieties of Religious Experience.'

we may note certain important points. For the æsthetic experience the Idea is not a point of view taken by mind in discourse, but 'a real presence confronting contemplation.' In discourse the mind is always '*on the move*,' looking at particulars from different points of view. Wonder has not as yet entered it; it is rather a "sense of removing difficulties." But in contemplation, mind *rests* 'wondering in the presence of eternal object.' "The Eternal Idea is revealed in some welcome, some familiar, or beautiful object of sense—literally *in* the object of sense: not as another object which the object of sense 'resembles,' but as the very object of sense itself transfigured, become a wonder" (quoted from Prof. Stewart's 'Plato's doctrine of Ideas'). The Ideas for contemplation are things, we must note, and not points of view which they are in Logic. This æsthetic side, however, is quite unimportant for philosophy. The only important point about it is that it should not be mixed with the logical in an interpretation of Plato's theory of knowledge. It is by mixing the two sides that we are apt to say that the Ideas are 'things' in Logic. We should, therefore, keep the Ideas as "sensible objects"—"the objects of real mystic presence—apart from the Ideas as they are in Logic. Plato was a seer and a philosopher—Sometimes the seer in him abandons mysticism for philosophy, and sometimes the man of science gives prominence to the tendencies of the seer. We should, however, study the philosopher apart from the seer.*

§ 5. Aristotle's Criticism of the Ideas.

The criticisms of Aristotle are a unique phenomenon to be explained. That a man who studied for twenty years under Plato should misrepresent Plato's teaching is difficult to believe. But it is as difficult to shut one's eyes to definite

* This section requires fuller discussion; but it has been cut short because this composition is primarily concerned with the logical side of the doctrine.

statements of Plato in the dialogues and understand Plato on the basis of Aristotle's statements. Surely, Aristotle's statements cannot be taken to supersede those of Plato; but, on the other hand, as Prof. Burnet says, Aristotle's remarks are " one of the phenomena to be saved." Our only way out of the difficulty seems to be to learn the Platonic doctrine from its author, and account for the adverse criticisms of Aristotle in some other way. It will be very helpful, therefore, to understand the position from which Aristotle aims his criticisms at Plato's doctrine.

Mathematics played a great part in the Platonic doctrine. This annoyed Aristotle, as is apparent from such remarks in the Metaphysica as ". Mathematics has come to be the whole of philosophy for modern thinkers" [991A]. Aristotle himself was primarily a naturalist and had received his earliest education in physics and medicine. And the biological standpoint differs greatly from the mathematical. This may account for his hostile criticism of the Platonists, who, he thought, had been led by mathematics into the habit of acquiescing in abstract theory, to the neglect of natural history. The successors of Plato undoubtedly did this; but Plato can in no way be held responsible for it. Plato definitely says in the Republic (511B) that the dialectician after reaching the first principles descends in regular gradation and comes back from where he had started. And perhaps Aristotle generally criticizes the successors of Plato in the Academy, because he seldom speaks of ' Plato,' but mostly of the ' Platonists ' or ' those who believe in the Ideas.' From this it may be deduced that he is mostly aiming his criticisms at the teachers of the Academy. Be that as it may, let us now come to more certain facts.

We have seen that he was a naturalist, and this was apt to cause differences from Plato. Let us now see his own doctrine, from the standpoint of which he criticizes Plato. Aristotle's doctrine of substance is treated in two

ways, and accordingly his criticism of the Ideas falls into two sections. The logical treatment of the ' substance '—I mean, its treatment as content of definition, principle of scientific explanation or in Aristotle's words " as Form " —may be summed up thus: " Essence is an individual type . . . and individuality belongs only to substances, and so definition in the primary and simple sense belongs to substances" (Met., Z. 4). In this primary and simple sense combinations of a subject with one of its proper attributes have no definition nor essence (Ibid., Z. 5). A universal cannot be either the substance or an element in the substance of anything, yet how else can be defined a thing? (Ibid., Z.13). This is the difficulty of Aristotle's doctrine. The problem he himself more definitely formulates in (Met., B. Ch., VI)—" If the first principles are universal, they will not be substances. . . ; if they are not universal but of the nature of individuals, they will not be knowable, for the knowledge of anything is universal." Aristotle's own solution is that " Knowledge like the verb ' to know ' means two things one of which is potential and one actual. The potency, being, as matter, universal and indefinite, deals with the universal and indefinite, but the actual, being definite, deals with a definite object" (Met., M. 10). But Zeller points out that this contradiction —and this dualism between ' Form ' and ' Matter '—is one " which threatens to shake the very foundations of the system. Hard as Aristotle tries to bring form and matter together, still to the last they always remain two principles."

Here there is both resemblance as well as difference between Plato and Aristotle. The impression of the Platonic teaching left on him made him hold that the true knowledge is concerned with ' form ' (εἶδος) and not with particulars of sense, and the ' forms ' are in a sense real. As a naturalist, on the other hand, he believed that ' essence is an individual type,' and tends to speak as if particular

objects only are real, the universal being real only in a secondary way (cf. Met., Z. 4).

From the above point of view Aristotle asks whether the Platonic Ideas are a good theory of science. They are not, he says at once; because according to his own exposition of Plato's philosophy they are 'doubles of things' and 'exist apart' from them. What he means by 'doubles of things,' is clearly seen from the following remark: "They introduced others equal in number to these [sensible things], as if a man who wanted to count things thought he could not do it while they were few, but tried to count them when he had added to their number" (Met., A. IX). He says that the Ideas have been made "eternal sensibles" by the Platonists; they are static, "to suppose their moving is quite impossible." In short, he thinks that the Ideas are useless doubles of sensible things, eternal sensibles, fixed, distinct existences—posited by Plato's imagination in an imaginary world of Ideas, diametrically opposed to, and sharply distinct and separate from, the world of actual things which Plato foolishly ignored. His criticisms throughout the Metaphysics are based upon these convictions; and he asks all sorts of questions—What is the use of the Ideas?, are they not merely substantiated predicates? etc.—remarking that the doctrine is full of "thousands of difficulties." He even aims at the Ideas the "third man argument" in face of Plato's definite warning in the Parmenides. He has in his own system a dualism, as we have seen; and being anxious to conceal the gap, he contrives to discover a supposed gap in the Platonic doctrine, on which he fastens. This seems to be the key-note of Aristotle's dissatisfaction with the Ideas. We have seen, however, in our examination of the dialogues, that criticisms like those of Aristotle cannot be levelled against the Platonic theory. The Ideas are laws or scientific points of view, and as such it is wrong to call

them doubles of things, and substantiated predicates. They are never eternal sensibles, and are not too static; and there is no imaginary World of Ideas for Plato. All these points we have already discussed.

How Aristotle could come to such a misunderstanding of Plato, we cannot even guess. So much, however, may be safely remarked that, being utterly incapable of æsthetic experience, he jumbled together the two sides of the doctrine and took the Ideas to be 'things' in logic—while they are things only for contemplation. That Aristotle could sometimes misunderstand Plato is fully born out by the 7th Epistle where Plato says that those who had published the reports of his lectures on the Good had not understood the doctrine at all. And "we know from Simplicus" that Aristotle was one of these men (cf. Burnet, p. 221). This doctrine of the Good which Aristotle could not fully understand must surely have got some mystical elements in it, as appears from the description of Plato in the Epistles. Further, it may be said that most of the Aristotelian criticisms are aimed at the teachers of the Academy; for Aristotle says that the Platonists do not recognize Ideas for all things. Now Plato, as we have seen, believed that there is an Idea for everything that is capable of scientific explanation; while as Prof. Burnet says, the successors of Plato limited the Ideas to a class of objects only, in view of the criticisms of Aristotle.

The second class of objections of Aristotle are made from the point of view of his theory of the 'Form' as cause—as the source of motion and the principle of actual production. Aristotle says that the Platonic Ideas give no account of change and asks—"What on earth the Forms contribute to sensible things, either to those that are eternal or to those that come into being and cease to be; for they cause neither movement nor anything in them? To say that they are patterns and sensible things share in them is to use empty words and

poetical metaphors" (Met., M. 5). He further asks 'how can a thing act where it is not? In short his main thesis is that the Ideas are useless and nonsense as the cause of generation. We have seen that the Ideas are *in* things, as principles operative within, they are through and through *immanent*, never transcendent. We have also seen how the Platonic theory can account for change and generation and how the Ideas are 'cause.' To discuss these points again would mean unnecessary repetition. But there is one point worth noting in this connection. The Phaedo tells us that Socrates was dissatisfied with the theory of Anaxagoras especially because it could not account for change and generation and could not give a satisfactory description of the 'cause'—and this dissatisfaction we are told was the beginning of his philosophy. This goes to prove that Socrates and Plato—the authors of the doctrine of Ideas—must have primarily aimed at fully accounting for change and generation by their doctrine. Now to say that this doctrine cannot at all account for change and generation would simply mean that it has totally missed to serve the purpose for which it was meant. This, however, is simply incredible, unless we believe that two of the greatest philosophers—Socrates and Plato—flattered themselves with shadows; and having built castles in the air, took them to be real structures of bricks and stones. And if Plato and Socrates have dreamt a day dream why has posterity—including such deep thinkers as Hegel—appreciated their doctrine so highly?

§ 6. The Ideas.

Now we are in a position to give a simple exposition of the doctrine. We shall not concern ourselves with the discussions for which the reader must be referred to the body of this essay: we shall here only put together the conclusions in a descriptive manner. In fact all that was

necessary has been said and what follows will be simple repetition. But following the way of Plato, we may recapitulate the whole thing. Indeed, "now that we have ascended to this lofty stage in the argument," it may not be amiss to review the whole from this lofty "watch tower."

To begin then, thinking is not the same thing as having a sensation. Thinking implies a judgment, which is expressed in propositions; and no proposition is the mere record of occurrences of sensations. Again, all thinking is not knowledge or science. We must not identify science with mere 'opinion' or 'belief.' We are not sure about 'Opinions,' we cannot formulate them systematically, and we cannot give any 'reason why' for them. Knowledge, on the other hand, is a rational thing. Belief can be communicated to others by skilful Sophists, while knowledge can be produced only by the considerations of good and solid grounds.

These two, 'opinion' and 'knowledge,' have two distinct objects for their study. The truths of 'knowledge' are definite and universally valid, and so its object should be immutable, completely determinable by the intellect, and unvarying. Science is thus concerned with what is eternal, immutable, and fully rational. The best example of such objects is to be found in the sphere of mathematics. The character of mathematical objects is fully determinate and intelligible—and the mathematician knows them. This is the ideal of science. Plato holds that the same should be true of Philosophy. On the other hand, there are objects whose character is changing, flowing like a fluid and our statements about them can never be fully true. These are what the senses give us.

Mere impressions of senses and pure quality are indeterminate or 'unlimited.' In other words, to be definitely determined, they must be brought under universal laws which must be intelligible, determinable, "fixed" and "perma-

nent''—the last two terms meaning 'universally valid.' These laws or points of view form the objects of knowledge. We can be said to have real knowledge only so far as we succeed in definitely determining this indeterminate element, and bringing it under laws. And if these laws can be mathematically determined, the goal of our endeavours will be reached. The objects of mathematics are fully determinable and these laws will become fully intelligible if we can reduce them to something like the objects of mathematics, *viz.*, numbers. In other words, pure quality is indeterminable; in order to be definitely ascertained it must be viewed from a quantitative standpoint. If we can do so, we shall obtain a sure and universally valid knowledge of the universe. This, however, does not seem possible, and in all probability there will always remain some contingency in the universe which cannot be made perfectly intelligible. Our endeavours, however, will not prove fruitless. Although the contingent element cannot be fully rationalized, every attempt that we make at rationally understanding it, will lead us a step forward and make intelligible a portion of it.

The universe is an ordered and systematic whole, 'God geometrises' and order and symmetry is the one law of nature. Therefore we must always look for laws and try to rationally understand the cosmos. The instrument with which we, as scientists, do this, are Ideas. "They are, for Plato, just those fixed, absolutely determinate objects of thinking which *really* '*are*' and 'do not become.'" The word 'Idea' primarily meant 'form' or 'figure.' It has nothing to do with our modern usage of the term. We can call the Ideas concepts in logic; but while so doing we must remember that they are that which is known, not the process of knowing, and that they do not depend upon the thinking mind for their existence, but are absolutely objective. The mind *discovers* them, it does *not make* them.

These Ideas are what the scientific man tries to find out. They are connotation, definition, essence, context, a need to be definitely met with, a use, the law, the cause, the right point of view—we call them by all these names in different spheres of ethics, logic, physics, etc. There is an Idea wherever there is scientific explanation. There are Ideas of qualities, quantities, objects, members of natural kind, elements like water, fire, etc., things of everyday use like bed, table, knife, etc., and even of such things as mud, dirt, etc. In short, all things have their Ideas.

These Ideas are related to the objects of sense in the same way as, to quote Prof. Taylor's phrase, " a circle is related to the equation of the curve "—or, to put the same more simply, as a law is related to the things governed by that law. We come to know the Ideas by an effort of the soul itself, though we get the stimulation from the senses. Plato says that we know them by ' recollection.' ' Reminiscence ' or ' recollection ' simply means that the mind by its very nature reacts on the sensible things in certain ways and thus arrives at concepts. There is no crude doctrine of innate Ideas in Plato's philosophy. The child comes to the world with senses, but does not know how to interpret the impressions given by them. He advances to the knowledge of the Ideas by suggestions received from the impressions of the senses. We have never seen a perfectly straight stick, but the more or less crooked shape of the sticks we see, suggests to us the straightness which can never be the object of sense.

The Ideas as laws, contexts, " or whatever you like to call them," are interconnected and interdependent and form together the system culminating in the Idea of the Good. The Good at once gives reality to objects and knowledge to mind. It is the first principle where being and knowledge shake hands.

Passing now from the Ideas as explanations or laws, we come to the Ideas as categories of mind. The native

categories of mind are those which owing to their own " communism " make possible the 'communism ' of the special Ideas with the particulars of sense. They are not *special* Ideas but *general* Ideas with the help of which we make the sensibilia intelligible and discover the special Ideas. They give rise to the fundamental judgments on which are based the empirical judgments.

Concluding Remarks.

This is what the study of the Platonic dialogues has led me to regard as Plato's theory of Ideas. I cannot say that I have been infallible in grasping the thought of Plato; but, I presume, my account is not very far from what the theory meant for Plato himself. The reader will observe that I have closely followed the words of Plato and have avoided all discussions of logic and epistemology—and this I have purposely done. My idea is that we must first understand a philosopher in his own light, and then try to judge how far he has really solved the persistent problems of metaphysics, and what is his permanent legacy to posterity ;—and I hope to give out another essay which will discuss how far Plato has solved the great epistemological problems, what is his legacy to the great thinkers like Aristotle, Kant and Hegel, who have followed him, and how far his teaching is of permanent value as helping us in solving the problems with which the modern philosophers are busying themselves. And I feel convinced that Plato would fully prove himself to be the real " spectator of all time and existence," when his philosophy is put side by side with those of Kant, Russell and Dr. Whitehead.

SECTION III

SANSKRIT

DREAM THEORY IN INDIAN THOUGHT*

BY

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Lecturer in Sanskrit.

ध्यात्वा तीर्थपतिं ततो गणपतिं सूगाभिधानां प्रसूम्
तातं श्रीजयदेवसंज्ञमनिशं नत्वा गुरुं मध्वरिम् † ।
स्वाप्नं तत्त्वमिदं विवेचनपरं शास्त्रं समालोच्य वै
छात्राणां हितकाम्यया वितनुते श्रीभानुमेशः कृती ॥

CHAPTER I.

INTRODUCTORY.

In the life of conscious beings there are two stages where knowledge is possible: one, in which the sense-organs are at work, is called *waking-state* and the other, in which the external sense-organs have stopped to work, is known as the *sleeping* or *dreaming* state.

In the life of conscious beings we find two distinct stages where knowledge is possible. In one, all the five organs of sense are open to the impressions of the external world, while in another, they are cut off from them. The former is known as the *waking-state* while the latter as the *sleeping-state*.

In the waking state a man acquires merit and demerit through the experiences of pleasure and pain.

When a man is conscious of the existence of his body and the sense-organs and acquires merit and demerit (*Dharma and Adharma*) from the experience of pleasure and pain, through his sense-organs, he is said to be in the *waking-state*.[1] The opposite of this

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*I am much indebted to my teachers Dr. Jhā and Paṇḍita Gopīnātha Kavirāja for this paper.

† मधुसूदनमित्यर्थः ।

[1] Padārthasangraha of Padmanābha along with Madhvasiddhāntasārasangraha; Oblong Size, p. 111 b.

According to this author Bhagawat—the Supreme God—enters the universe and assumes various forms and protects the universe in five states:—Jāgrat, Svapna, Suṣupti, Moha and Turīya. *Ibid.*

is called the '*sleeping-state*,' when Manas, bereft of the *yogic dharmas* (merit acquired by yogic practices) retires to a place where it has got no connection with the external sense-organs.[1]

While there is nothing like this in the dreaming state.

Sureçvara in his Vārttika on Bṛhadāraṇyakopaniṣadbhāṣya says 'Ātman remains in the *hṛdayākāça* having restrained all the sense-organs accompanied with the impressions (Vāsanās) of the waking state, through the *Nāḍīs*, which, like the filaments of Kadamba flower, are spread over the entire body,[2] along with the Manas.[3] This is how he describes the sleeping state. Suçruta, on the other hand, holds that 'Sleep is really Viṣṇu's *Māyā* and it overcomes such persons, who possess no merit at all. In other words, sleep overpowers a man according to the degree of his demerit (*Adharma*). Thus, if a man is meritorious (Dhārmika) and free from even slight touches of sin, he will have very little or no sleep at all. It is clear, therefore, that *Devatās* having no demerit at all do not ever get any sleep and if they get ever any sleep it is only due to the presence of *Tamas*, which is an aspect of Māyā and from which no one is free, in them. But in the case of human beings it is impossible

The same is explained by Sureçvarāçārya. Thus he adds that the Ātman retires to the hṛdayākāça along with the Manas having the Vāsanās of the external world.

Suçruta calls it Viṣṇu's Māyā; and holds that this Māyā overpowers only those who have no merit. It is only, therefore, that Gods have no sleep and if at all it is due to the presence of Tamas, an aspect of Māyā.

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[1] Saptapadārthī and its Com. Mitabhāṣiṇī, p. 68[12-13], Vizia. Ed.

[2] Bṛhadāraṇyakopaniṣadbhāṣyavārttika, Adh. II. Brāhmaṇa 1, verse 326 and Ānandagirī's Com. on the same. Ānandāçrama Ed.

[3] *Ibid.*, verses 250-251. The view set forth here seems to belong to Bhartṛprapañca.

to hold that they have got no demerit[1] at all, hence they can never be entirely free from sleep. It is, therefore, that Suçruta says—sleep overpowers all the living beings by its very nature. In other words, it is believed that every being possesses in some degree or other all the three elements—Sattva, Rajas, and Tamas, so that when this Tamas captivates the human heart which is the seat of consciousness he gets sleep.[2] Vāgbhaṭṭa says, "When all the *srotas* belonging to the organism are filled with phlegm and the sense-organs, being tired, retire from the field of action, then sleep overpowers a man."[3] So says Bhoja in his Vṛtti—'Sleep is that vṛtti of Manas in which the knowledge of the non-existence of the objects of the external world exists.'[4] The removal of the objects from the scope of this Vṛtti is due to the preponderance of Tamas.

As human beings can never be free from demerit they get sleep naturally.

Vāgbhaṭṭa adds to it that when the *srotas* are filled with phlegm and sense-organs retire from the field of action sleep overpowers a man.

Bhoja calls sleep a Vṛtti of Manas.

This sleep, according to the Indian Medical Science,[5] is divided into three[6] kinds :—

(*a*) When the nerves (*srotāmsi*) carrying impressions of cognitions are filled with *phlegm*,[7] due to the increase

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[1] Demerit may be either due to body, or to Manas, or to speech, *vide* Nyāya Bhāṣya on N. S. I. 1. 2, p. 8, Vizia. Ed.

[2] Suçrutasamhitā-Çārīrasthānam, Adhyāya 4, Section 33, p. 277 ; Nirṇaya. Ed. and Ḍalhaṇa's Com. on the same.

[3] Aṣṭāṇgahrdaya Çārīrasthāna, Adhyāya 6, under verse 39.

[4] Bhojavrtti on Vyāsabhāṣya on Patañjali Sūtra I, 10, Cal. Ed.

[5] Suçrutasamhitā, p. 277.

[6] Ḍalhaṇa's Com. on *Ibid.*, p. 277.

[7] According to Indian Medical Science a human body is preserved in good condition by the three humours :—Phlegm—*Kapha*; Wind—*Vāta*; and Bile—*Pitta*. A disturbance in the arrangement or diffusion of these three humours when they are in their normal state reduces the body into unhealthy condition (Carakasamhitā, Vimānasthāna A. 13. Thus sleep, although it is very helpful for the preservation of life, is due to some change in the arrangement of the humours. This is clear from the explanation given by Suçruta for the various kinds of sleep.

of Tamas, sleep overpowers a living being. This is known as *Tāmasī-Nidrā*. From this sleep no one wakes up. It takes place at the time of final dissolution — *pralaya*.[1] Although all the varieties of sleep are due to the preponderance of Tamas yet it is so called because of its intensity.[2]

Āyurveda divides sleep into three subdivisions: (*a*) *Tamasī* is that sleep which overpowers a person when nerves carrying impressions are filled with phlegm due to intense Tamas. It happens during pralaya.

(*b*) The second variety is known as *Svābhāvikī-Nidrā*—natural sleep, according to which a man, who has got intense Tamas, gets sleep both during the day and the night; he who possesses intense Rajas, gets irregular sleep, because Rajas being of the nature of *cala* [3]; and he, who has intense Sattva, gets sleep about the midnight, as it is the time when Sattva predominates over the other two aspects.[4]

(*b*) *Svābhāvikī* Nidrā is that which overpowers a person according to the degree of Sattva, Rajas and Tamas present in him: Tamas necessitates sleep at every time, Rajas irregular while Sattva about the midnight.

(*c*) The third is known as *Vaikārikī-Nidrā*, according to which a man, who has got very little phlegm and is overpowered by Vāyu, generally, does not get any sleep; if at all, it is known as Vaikārikī. That is, when, by exertion, Vāyu is increased and phlegm is decreased, Manas becomes tired and retires to a place, where no external knowledge of the existing objects of the world is possible, then a man gets sleep which is known as *Vaikārikī*.[5]

(*c*) The third is called *Vaikārikī* which overpowers a man who has little phlegm and more wind.

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[1] Suçrutasamhitā, p. 277.
[2] Ḍalhaṇa's Com. on *Ibid.*, p. 277.
[3] *Vide* Sānkhyakārikā, 13.
[4] Suçruta, p. 277, and Ḍalhaṇa's Com. on the same.
[5] *Ibid* Also *vide* Carakasamhitā—

यदा तु मनसि ह्लान्ते कर्मात्मानः ह्लमान्विताः।
विषयेभ्यो निवर्त्तन्ते तदा स्वपिति मानवः॥

—Quoted by Ḍalhaṇa on p. 277.

It is this sleep which is again subdivided into *Svapna*—dream-consciousness and *Suṣupti*—dreamless sleep. By Svapna we mean dream-consciousness.[1] It is this Svapna with which the present paper is mainly concerned. In order to give a finishing touch to it the paper will include a brief treatment of Suṣupti also at the end.

This sleeping state may be divided into dreaming-state and the state of Suṣupti.

The aim of the present paper is to put forth before the Oriental Scholars the treatment of the Dream Theory in Indian Thought. The writer does not claim to draw out his own conclusions in places where it is not possible to support them from the texts, nor it will be within the scope of the present paper to show a comparative study of the subject.

CHAPTER II.

Predicability of Dream.

There has been difference of opinion among the various Schools of Indian thought and the scholars too as to the inclusion of Dream-consciousness either under *anubhava*, or under *smṛti*. We shall try to trace here its history in the various schools.

Predicability of dream:—There is difference of opinion whether Svapna is smṛti or anubhava.

A. NYĀYA-VAIÇEṢIKA.

(1) NYĀYA.

(*i*) *Ancient-Period.*

There is no distinct mention in the Nyāya Sūtra whether Gautama included dream-consciousness either under *anubhava* or identified it with Smṛti like later Naiyāyikas. But a close study of some of the Sūtras [2] of Gautama

A close observation of the facts of the ancient school of Nyāya shows that they believed that *svapna* is not Smṛti.

[1] (*i*) Kiraṇavalī of Udayana, p. 273[8-9], Benares Ed.

(*ii*) Rasasāra of Vādīndra, a Com. on the above, p. 102[4-9]; Saraswatībhavana Text Series, Benares.

[2] *Vide* Nyāya Sūtras III. 1. 14; IV. 2. 34-35.

shows that he did not include dream-consciousness under Smṛti. This becomes still clearer with Vātsyāyana, who while enumerating the marks (lingāni) for proving the existence of Manas, speaks of *svapna* (distinct from Smṛti) as one of the marks along with Remembrance (Smṛti), Inference, Valid Testimony, Doubt, etc.[1] Again with Uddyotakara we do not find any change in the above view.[2] With Uddyotakara we practically end with the ancient period of Hindu Nyāya-Śāstra.[3]

Vātsyāyana and Uddyotakara appear to follow the author of the Nyāya Sūtra.

(ii) *Mediæval-Period.*

Thus after him begins the mediæval period of Nyāya-Śāstra. 'The curtain rises with the appearance on the scene of Bhāsarvajña, the author of Nyāyasāra.'[4] He defines *Viparyaya* — perverse knowledge — as '*Mithyādhyavasāyaḥ*' and cites 'the perception of elephant, etc., in sleep' as the second instance.[5] Jayasiṁha Sūri, a commentator of Nyāyasāra, of the 14th century A.D.,[6] while commenting upon the particular instance given above, says, 'Bhūṣaṇakāra has cited this instance with a view to collect all the cases of perverse knowledge, and to refute the view of those writers who hold that dream-consciousness is quite different from *Pramāṇa* (means of right cognition), *Phala* (result arrived at

Bhāsarvajña of the mediæval school for the first time appears to hold Svapna as Smṛti. Jayasiṁhasūri, a commentator of Bhāsarvajña's work, adds that it is a false Smṛti.

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[1] Nyāya Bhāṣya on N. S. I. 1. 16, p. 27. Vizia. Series Ed.

[2] Nyāya Vārttika, p. 79, Vindhyeçvari Pd.'s Ed.

[3] Princess of Wales Saraswatibhavana Studies, Benares, Vol. III, page 81.

[4] *Ibid.*

[5] Nyāyasāra, p. 2 [8-9], Dr. Satiça Candra's Ed.

[6] Introduction to Nyāyasāra by Dr. Satiça Candra, p. ix.

through these means), *Smṛti* (Remembrance), Saṁçaya (doubt)," etc.[1]

Now this Bhūṣaṇakāra is no other than Bhāsarvajña who himself has written a commentary called Nyāyabhūṣaṇa on his own Nyāyasāra.[2] If this be a correct view, it is clear from the lines of Jayasiṁhasūri that before the time of Bhāsarvajña, dream-consciousness was accepted as quite different from Smṛti, and it was Bhāsarvajña who for the first time tried to include it under Smṛti, for as Jayasiṁha says *Viparyaya* is of two kinds: (1) *anubhūyamānāropa*—a false imposition of knowledge of the kind of anubhava; and (2) *Smaryamāṇāropa*—a false imposition of Smṛti—Remembrance; and he further says that Svapna is included under the latter head.[3] Thus it is clear that it was Bhāsarvajña the Naiyāyika who started the view that dream-consciousness is a kind of false Smṛti.[4]

Next to Bhāsarvajña comes the great Vācaspati Miçra. He wrote a running commentary called Tātparya on Uddyotakara's Nyāya-Vārttika. Although he comes after Bhāsarvajña, he does not adhere to Bhāsarvajña's views.[5] Vācaspati follows the author of the Vārttika in holding that dream-consciousness is different from Smṛti.[6] This appears to be more or less due to his being an independent writer.

Next to Bhāsarvajña comes Vācaspati Miçra, the author of Tātparyaṭīkā, who follows Vātsyāyana and Uddyotakara.

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[1] भूषणकारस्तु ये स्वप्नज्ञानं प्रमाणफलस्मृतिसंशयादिभ्योऽर्थान्तरमिच्छन्ति तन्मतप्रतिक्षेपार्थं सकलविपर्ययसंग्रहार्थञ्च द्वितीयमुदाहरणमित्युदाहार्षीत्—Nyāyatātparyadīpikā of Jayasiṁha Sūri, p. 67, Dr. Satīça Candra's Ed.

[2] P. W. S. S., Vol. III, pages 90—93.

[3] *Vide* Bhāsarvajñas's Com. on Nyāyasāra, pp. 66-67, Dr. Satīça Candra Vidyābhūṣaṇa's Ed.

[4] This inclusion of dream-consciousness under false Smṛti cannot be due to the Vaiçeṣika influence, for Bhāsarvajña appears not to have much sympathy with this School.—P. W. S. S, Vol. III, p. 82, footnote.

[5] Bhāsarvajña's views are generally accepted as partial. They speak of him as an *Ekadeçi Naiyāyika*. Thus it is quite possible that some of his views may not have a general acceptance.

[6] Tātparyaṭīkā, p. 234, Kāshi Sanskrit Series, Benares Ed.

Again, just after Vācaspati, may be introduced on the scene, the old Naiyāyika Jayanta.[1] He being another humorous independent writer on Nyāya, is not at all influenced by Vācaspati Miçra. He follows his own way and holds that dream-consciousness is Remembrance.[2]

But Jayanta Bhaṭṭa who comes after Vācaspati appears to hold that Svapna is Smṛti.

Next comes Udayanācārya. He too does not appear to improve upon Vācaspati's Tātparyaṭīkā in his Pariçuddhi;[3] but in Nyāyakusumāñjali-prakaraṇa he says—"It is found that in dream things or events belonging to the different time and space are brought to our consciousness even when the external organs of sense have stopped to function." This cannot prove that dream-consciousness is a case of obvious and doubtless (*asandigdha-viṣayatva*) Remembrance (*Smaraṇa*); for we do not have the cognition expressed in the form 'I remember,' or 'I remembered,' but, on the other hand, the cognitions are 'I see,' or 'I have seen,' or 'I saw.'

Udayana, coming after Jayanta, is a great upholder of the view that Svapna is not Smṛti but anubhava.

This sort of knowledge (*anubhava*) is not due to some imposition (*āropa*); for we do not see any obstacle in its way and also because we see in dreams events taking place which did not take place ever before; for instance, we see 'our own heads being

His argument is that there is a vast difference between the form of expression of Smṛti and that of Svapna. The form of the latter resembles the form of anubhava.

[1] For the historical treatment *vide* P.W.S.S., Vol. III, p. 103.

[2] Nyāyamañjarī, pp. 182[21–28] – 183[1–5], Vizia. Ed.

[3] But even there we see that while quoting Patañjali-sūtra I. I. 6, he reads it as "प्रमाणसंशयविपर्ययस्वप्नस्मृतयः' instead of 'प्रमाण-विपर्ययविकल्पनिद्रास्मृतयः as the present text reads. This shows that perhaps Udayana with a view to emphasise the difference between Svapna and *Smṛti* has purposely used the word *Svapna* in place of *Nidrā* (*vide* Pariçuddhi MS. lent by Dr. Jhā, p.683°). This is only a suggestion, for, the use of Svapna for Nidrā might be due to other causes also, *viz.*, the mistake of the copyist, or that of the author himself who had to depend upon his memory only for such quotations, or that it might have been used as a synonym for *Nidrā*.

cut off.'[1] This, if dream-consciousness be a Remembrance, cannot happen, as Remembrance is only a repetition of the past events. This makes the position of Udayana very clear. He further adds: 'an objection may be raised here that it may not be a true case of Remembrance but it may be a case of perverse-remembrance (*Smṛtiviparyāsa*).' To this is said "if this means a perversion of knowledge—*anubhava*—in the form of Remembrance, then it has been already rejected,[2] as there is no possibility of it; for it is impossible to apprehend a thing through any other form of expression in which it was not apprehended before, as for instance, if in Remembrance a form like '*sa ghaṭaḥ*' occurs then the form of our present knowledge should be 'I acquire the knowledge of *that* ghaṭa and not *this* ghaṭa.' '*Ayam ghaṭaḥ*'—'this pot'—is not the form of Remembrance. Hence we should accept it (dream-consciousness) as *anubhava* only and not *Smṛti*."[3]

He does not appear even to call Svapna a false Smṛti.

(*iii*) *Modern-Period.*

Coming to the modern period, we find that the two Schools—Nyāya and Vaiçeṣika—appear to become one or as Dr. Vidyābhūṣaṇa says 'the two philosophies actually coalesced.' But even then we find that they hold their different views as regards the predicament of svapna. Accordingly Kuṇḍa

The modern writers on Nyāya-Vaiceṣika are very clear. They clearly say that the Naiyāyikas hold Svapna as Smṛti while the Vaiçeṣikas hold it as anubhava

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[1] Kusumāñjaliprakaraṇa, Section II, Stavaka v, Kārikā 6, p. 235[2-7], Bibl. Ed.

[2] When it was said that no obstacle is found in the way of expressing it in the form of अनुभवात्मकज्ञान—Vardhamāna's Prakāça on *Ibid.*, pp. 235[18]-236[15].

[3] *Ibid.*, pp. 235[8-10]-236[1-5]. For further references of Udayana's view *vide Infra*, p. 279, and also Kiraṇāvalī, p. 275[10-12], Vindhyeçvarī Pd.'s Ed.

Bhaṭṭa holds that 'dream-consciousness is according to Nyāya a Remembrance.'[1] So says Keçava Miçra: 'all the cognitions of dream are cases of Remembrance.'[2]

But Pandit Raghunātha, a Naiyāyika of the modern period, includes Svapna under anubhava.

Raghunātha Pandit, a Naiyāyika, holds, on the other hand, that 'Svapna is a kind of anubhava' and he further adds 'if it be due to merit (*dharma*) it is included under *Pramā*—valid cognition, and if it be due to demerit (*adharma*) it is *Apramā*—false knowledge.'[3]

Thus it is clear from the above that according to the Nyāya writers of the ancient period Svapna is different from Smṛti; according to the majority of writers of the mediæval and the modern periods it is included under Smṛti.

Thus it is clear from the above that the ancient Naiyāyikas hold that Svapna is anubhava while the mediæval and the modern Naiyāyikas class it under Smṛti.

(2) VAIÇEṢIKA.

Now turning towards the Vaiçeṣika School we find that the Kaṇāda-sūtra mentions Svapna as separate from Smṛti.[4] Praçastapāda also says: Buddhi is of two kinds—Vidyā and Avidyā. The latter is subdivided into: Saṁçaya, Viparyaya, Anadhyavasāya and Svapna;[5] while Smṛti is treated separately, not as an Avidyā.[6] This separate mentioning of these under two different heads makes his position very clear that they are two different categories.[7] The commentators of

(2) Vaiçeṣika: The Vaiçeṣika Sūtra separates Svapna from Smṛti Praçastapāda supports the Sūtra. Kandalī and Kiraṇāvalī are very clear. Çrīdhara in Kandalī says Svapna is Avidyā while Smṛti is Vidyā although not a Pramāṇa.

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[1] Padārthadīpikā, p. 16 [14–16]. Reprint from the Pandit.
[2] Tarkabhāṣā, p. 89. Reprint from the Pandit.
[3] Padārtharatnamālā, p. 34 [15–20]. Reprint from the Pandit.
[4] Vaiçeṣika-sūtra, IX. 2. 6–8, Gujarāti Press Ed.
[5] Padārthadharmasangraha, p. 172, Viz. Ed.
[6] *Ibid.*, p. 256, and also *vide* Kandalī on the above. One should not consider Smṛti as a means of right cognition, seeing it being called a kind of Vidyā—Kandalī, p. 257 [15].
[7] *Vide* Candrakānta's Bhāṣya on Vai. Sū. IX. 27.

Padārthadharmasangraha—Çrīdhara and Udayana—are very clear on this point. Çrīdhara distinctly says '*Smṛti-lakṣaṇāṁ vidyāmācaṣṭe*'[1] that is, the author explains Smṛti as a form of Vidyā, while he too like Praçastadeva has treated Svapna as one of the Avidyās.[2] Udayanācārya, with whose view on this point we are familiar by this time, is also very clear in his commentary on Padārthadharmasangraha. He says, 'We should feel pity with those dull-headed persons who hold that dream-consciousness is a clear case of Smṛti.'[3] So the other writers on Udayana also support this view.[4]

Udayana says, 'We should feel pity with those dull-headed who accept Svapna as Smṛti.'

Tracing the opinion of the mediæval and modern commentators of Vaiçeṣika-sūtra, we find that Çankara Miçra says, '*Svapna* is a form of *Anubhava*.'[5] Again, he says, 'Smṛti is a kind of *Vidyā*[6] and includes dream-consciousness under Avidyā.'[7] Candrakānta very clearly says, 'This dream-consciousness is not Smṛti, as it has been separately mentioned (by the author of the Sūtra).'[8] Again, the Vaidic Vṛtti, on Vaiçeṣika-sūtra, says, 'We experience difference between the knowledge acquired by smṛti and the dream-consciousness. This is not possible if they were not quite different at the very root.' He further holds that the necessity of the Sūtra—*Dharmācca*—is only to show the difference between Smṛti and Svapna.[9]

The mediæval and the modern Vaiçeṣikas are all at one to call Svapna as Anubhava.

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[1] Kandalī, p. 256 [21].
[2] *Ibid.*, p. 172.
[3] Kiraṇāvalī, p. 275 [10–12]; 271 [11]. Vindhyeçvari Pd.'s Ed.
[4] Rasasāra by Vādīndra of the early part of the 13th Cen. A.D., p. 101[20]. P.W.S.T. No. 5.
[5] Upaskāra on Vai. Sū. IX. 2. 7-8, pp. 341[6]–342[24]. Gujarātī Press Ed.
[6] Upaskāra on Vai. Sū. IX. 2. 6, p. 340[7].
[7] *Ibid.*, p. 341[6].
[8] Bhāṣya on Vai. Sū. IX. 2. 7, p. 342[15].
[9] Vaidic Vṛtti on Vai. Sū. IX. 2. 9, p. 188. Nirṇayasāgara Ed

But there appears to be at least one writer, who is referred to by the author of Upaskāra as *Vṛttikāra*, who appears to hold that 'dream-consciousness is not different from Smṛti.'[1] All the later writers appear to hold the traditional view of the Vaiçeṣika that dream-consciousness is a kind of Avidyā and thus different from Smṛti.[2]

But the author of Vṛtti, quoted in Upaskāra, appears to side with the Naiyāyikas and holds that it is Smṛti.

Thus it is clear from the above that the Vaiçeṣikas are at one to hold that dream-consciousness is an Avidyā and different from Smṛti.

B. MĪMĀṂSĀ (PŪRVA).

According to the Mimāṁsā School dream-consciousness is not different from Smṛti, as it is due to the awakening of the impressions.[3] There does not appear to be any difference of opinion as to this among the two schools of Bhaṭṭa and Prabhākara.

B. Mīmāṁsā (Pûrva) holds that Svapna is smṛti and not anubhava.

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[1] *Vide* Upaskāra on Vai. Sū. IX. 2. 8, p. 342. It is said 'उक्तं च वृत्तिकारैः 'अनुभूतवस्तुस्फुरणार्थतया न स्मरणादर्थान्तरं स्वप्नज्ञानम्' इति. But this line is quoted in connection with the statement that स्वप्नान्तिक is not different from स्मृति. Now if by स्वप्नज्ञान the Vrttikāra meant स्वप्नान्तिक then there does not appear to be any inconsistency among the Vaiçeṣika writers; and it is also supported by the fact that a Naiyāyika like Çankara Miçra quotes it in that connection. But this will have to be accepted that it is the only use of the word स्वप्नज्ञान in the sense of स्वप्नान्तिक. I would myself rather consider it to be a mistake of the first editor of Upaskāra for we nowhere find such an use.

[2] Padārthadīpikā of Kuṇḍa, p. 16 [14–16]; Nīlakaṇṭhī on Tarkasangrahadīpikā of Annaṁ Bhaṭṭa, p. 88. Khemarāja's Ed. Here the author says 'यत्तु स्मृतिरूपं स्वप्नज्ञानमिति तद्भाष्यादिविरुद्धमित्युपेक्षितम्'. It is strange to find that the author of the Nyāyakoça says 'यत्तु नीलकण्ठ्यां स्मृतिरूपत्वं खण्डितं तद्भाष्यादितात्पर्यानाकलनादेवेति मम भाति'— Nyāyakoça, p. 969 ft.n. Second Ed. Here it is not clear which Bhāṣya they refer to; Tarkāmṛta of Jagadīça, pp. 12-13. Cal. Ed.

[3] Pārthasārathinātha Miçra's Com. on Çlokavārttika, p. 243[13] where he says 'स्मृतिरेव तावत् स्वप्नज्ञानमिति निश्चीयते, etc.'; Prakaraṇapañcikā, Ch. IV, p. 33, verse 19; p. 35, verses 44—47; Ch. V, p. 62[3–4]; Çāstradīpikā, p. 58 under Jaimini Sū. 1.1.5. Chowkhamba Ed.

C. SĀNKHYA-YOGA.

C. Sānkhya also holds it as smṛti.

Sānkhyas also believe that dream-consciousness is a kind of Smṛti; as they hold that 'dream-consciousness is produced only by impression,[1] and that which is produced only by impression is called Smṛti.[2]

But Yoga, on the other hand, does not seem to side with the Sānkhya. It holds it as a Māyā and hence a false case of anubhava.

Yoga, on the other hand, does not accept that it is a kind of Smṛti, although from the Bhāṣya of Vyāsa it appears to be so. The Bhāṣya says, Smṛti is of two kinds and dream-consciousness, through which the *bhāvita* (illusory events) is to be remembered, is one of them.[3] But the great Vācaspati Miçra in his Tattvavaiçāradī says, 'It is not a Remembrance but a perverse knowledge as the dream-consciousness satisfies the definition of *Viparyaya*. It has been called a Smṛti (by the Bhāṣya), but it is due only to its appearing like Smṛti.[4]

It is sometimes called (by mistake) Smṛti because it resembles it in some respects.

This fact is brought out very clearly by Bālarāmodāsin in his Ṭippaṇa. He says, "If dream-consciousness is to be taken to be Smṛti, there can be no knowledge of the form of '*This* horse runs' and similar others in dream, nor can there be any recognition to a man who has got up from sleep, in the form of 'I saw a king'; for such forms of cognition are not found in Smṛti, which, on the other hand, assumes the forms,—'*That* horse,' or 'I remembered a king,' etc. Thus dream-consciousness is quite different from

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But Çavara Svāmin appears to hold a different view as he says, 'dream-consciousness is a *Viparyaya*'—Çavara Bhāṣya, p. 7[1-12]. Chowk. Ed.

[1] सांख्याः—संस्कारमात्रजन्य : 'स्वप्नावस्था'.....परिणामः—Nyāyakoça, p. 970[6]. Second Ed.

[2] संस्कारमात्रजन्यं ज्ञानं स्मृति :—Tarkasangraha. p. 22[4]. B.S.S. Ed.

[3] ग्राह्यसंस्कारापूर्वास्मृति : सा च द्वयी भावितस्मर्त्तव्या चाभावितव्यर्त्तव्या च, स्वप्ने भावितस्मर्त्तव्या—Vyāsa-Bhāṣya on Yoga Sūtra I. 11, p. 38[1-3]. Cal. Ed.

[4] Tattva-vaiçāradī, p. 38[13]. Cal. Ed. Also consult Bhāmatī with Kalpataru and Parimala on Bra. Su. II. 2. 29, pp. 555-556. Nirṇayasāgara Ed.

Smṛti."[1] He further quotes a Çruti '*Neyaṁ Smṛtirapi tu Viparyaya.*'[2] In his support he says that it has been so called only because of its resemblance with Smṛti.'[3] Again he says 'it is the very sense in which Çankarācārya uses the word Smṛti in '*Smṛtireṣā yatsvapnadarçanaṁ.*'[4]

Bālarāma supports the above by quoting a Çruti and further says that Çankarācārya has also used Svapna in the sense of Viparyaya and never as Smṛti.

But, on the other hand, Vijñānabhikṣu, while interpreting the expression *abhāvitasmartavyā* as 'that which is indicative of future,' says 'one should not hold that dream-consciousness is not Smṛti on the ground that it neither reminds of the events seen in the past, nor is it produced only by *Saṁskāra* (which are the necessary conditions of Smṛti), for truly speaking dream-consciousness includes partly both the conditions in it.'[5]

But Vijñānabhikṣu holds that it is a Smṛti.

D. UPANIṢAD AND VEDĀNTA.

According to Upaniṣad dream-consciousness is an effect of Māyā,[6] or as some hold that it is not different from Māyā.[7] Accordingly they appear to hold that it is different from Smṛti. Thus says Ānandagirī, while commenting upon Sureçvara's Vārttika, that 'dream-consciousness is not Smṛti. This seems to be the opinion of Sureçvara also.' Although

The Upaniṣads hold that Svapna is either a product of Māyā or Māyā itself.

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[1] Yogadarçana I. 11. pp. 38^{23-25}-39^{1-25}. Cal. Ed.

[2] Brhadāraṇyaka.

[3] Bālarāma's Ṭippaṇa on Yogadarçana, p. 39.

[4] Çankara Bhāṣya on Brahma Sūtra II 2. 29, p. 201^{19}. Astekara Poona Ed. Also consult Bhāmatī with Kalpataru and Parimala and Ratnaprabhā on the same.

[5] स्वप्नदर्शनमेव हि भाव्यर्थसूचकतया शास्त्रे सिद्धम्। ···ननु स्वप्ने पूर्वदृष्टत्वास्मरणात् संस्कारमात्रजन्यत्वाभावाच्च कथं स्मृतित्वमितिचेन्न। अंशतस्तदुभयरूपत्वस्य स्वप्नज्ञानेष्वपि सत्त्वात् तादृशस्य स्वप्नांशस्यैवात्रोपन्यासादिति—Yogavārttika, p. 36^{9-13}. Jibānanda, Cal. Ed.

[6] *Vide* मायेत्थं स्वप्ननिर्माणलक्षणम्—Sureçvaravārttika, Verses 943-944. Ānandāçrama Ed.; अविद्याकार्यं स्वप्न एव—Çankarācārya on Brhadāraṇyakopaniṣad 4 3. 34, p. 370. Astekara Poona Ed.

[7] Brahma Sūtra III. 2.3 and Çankara's Bhāṣya on it.

this sense is not clear in the Text itself, yet Ānandagirī makes out this idea from the word 'ātmamāyayā.'[1]

But Çankarācārya holds that Svapna is not something new, for, mostly, it is Smṛti of the past events.

But Çankarācārya, while commenting upon Bṛhadāraṇyakopaniṣad, says, 'dream is not a perception of something new; for mostly Svapna is the Smṛti of what has been seen (known) before.'[2] Again, he says, 'in dream is perceived only that which has been perceived (before).'[3]

Sureçvarācārya appears to hold it as Smṛti.

But in another place Sureçvara appears to hold the view, that it is not different from Smṛti. He says, 'the impression, which was impressed upon the Buddhi, is aroused by the *Karman* (adṛṣṭa) and appears as Smṛti.'[4]

Schools of Vedānta side with the view of the Upaniṣads.

Coming to the various schools of Vedānta, we find that they are all at one to hold that dream-consciousness is only an aspect of Māyā and thus different from Smṛti.[5]

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[1] स्वप्नभूमावयं रत्वा क्रीडां कृत्वात्ममायया —Sureçvaravārttika, verses 980-81 and Ānandagirī on it.

[2] न च स्वप्नो नामापूर्वं दर्शनम्। पूर्वदृष्टस्मृतिर्हि स्वप्नः प्रायेण—Çankara Bhāṣya on Bṛha. Upa. 4. 3. 9, p. 345. Astekara's Ed.

[3] *Ibid.*, p. 333.

But we have seen above that Bālarāma interprets Çankarācārya's use of the word 'स्मृति' not in the true sense of the word, and he holds that Svapna is called Smṛti because of its resemblance with the latter. Thus he has quoted a line from Bṛha. Upa. 'नेयं स्मृतिरपि तु विपर्यय' in his support. Taking into consideration his view we will have to say that according to Upaniṣads Svapna is only मायाकाय or विपर्यय and not Smṛti. This seems to be the real view.

[4] प्रत्यक्षाद्युपलब्धौ यो बुद्धौ संस्कार आहितः।
कर्मणोद्भावितः सोऽयं स्मृतिरूपेण जायते—S. Vārttika V. 85.

[5] (i) मायामात्रं (स्वप्नदर्शनम्) Brahma Sūtra III. 2. 3, *vide* Çankara on it, p. 282. Astekara's Ed.

(ii) Vidvanmanorañjanī on Sadānanda's Vedāntasāra—न स्वप्नः स्मृतिः p. 77[18]. Cal. Ed.

(iii) मायामात्रं स्वप्नप्रपञ्चः—Anubhāṣya on Brahma Sūtra III. 2.3, p. 881.

E. ĀYURVEDA.

Ayurveda also calls Svapna as Smṛti.

It is not very clear anywhere in the original texts whether this branch of learning holds it either as Smṛti or different from it; but Ḍalhaṇa, the commentator of Suçruta Saṁhitā, while commenting upon a verse,[1] says, "it is Smṛti only, as it is a remembrance of the past experiences."[2]

F. BUDDHISM.

Buddhists appear to call it a kind of anubhava.

Buddhists hold that dream-appearance is a case of Pratyakṣa of the kind of *Indriyavyatireki*, that is, a direct perception without the activities of the sense-organs, which are overpowered by sleep.[3] Hence they too appear to call it a kind of *anubhava*.

(iv) स्मरणमेवैतदिति मतं निरस्तं भवति—Nyāyasudhā on Mādhva-Bhāṣya on Brahma Sūtra, p. 460a. The author even denies it to be a kind of false Smṛti.—*Ibid.*

(v) Vivaraṇaprameyasangraha, pp. 39-40. Viz. Ed.

(vi) Sankṣepa Çārīraka I. Verse 336. Benares Ed.

(vii) Prakāçaṭīkā on Anubhāṣya, pp. 876-877.

Siddhāntaleça says, on the other hand, 'स्वाप्नगजादौ चाक्षुषत्वाद्यनुभवो भ्रम एव' pp. 348-349. Chowk. Benares Ed. Thus it is clear that he denies *Svapna* to be a Smṛti and holds that it is a false अनुभव which is also denied by some, *viz*, the author of Vivaraṇaprameyasangraha, p. 39.

(viii) *Vide* Prasthānaratnākara of Puruṣottamajī, p. 9.

(ix) Bhāskarācārya, on the other hand, in his Bhāṣya on Brahma Sūtra, p. 161[7], Benares Ed., says देशान्तर-कालान्तरानुभूतानुस्मरणात् which shows that Svapna is the remembrance of the past experience.

Besides this we find that Bhīmācārya in his Nyāyakoça says, 'मायावादिवेदान्तिनस्तु संस्कारमात्रजन्यः स्वप्नावस्थाशब्दवाच्यो बुद्धे-र्विषयाकारपरिणामः इत्याहुः' p 970[6]. This statement appears to be influenced by Sāṅkhya.

[1] पूर्वदेहानुभूतांस्तु भूतात्मा स्वपतः प्रभुः।
रजोयुक्तेन मनसा गृह्णात्यर्थान् शुभाशुभान्। Suçruta. Çārīrasthāna, Adhyāya 4, Verse 36.

[2] स्मृतिरेवायं पूर्वानुभूतेऽर्थे etc. Ḍalhaṇa on *Ibid.*

[3] *Vide* Jayamangalā Com. on Sāṅkhyakārikā, p. 7, under kārikā 5. Cal. Oriental Series Ed.

The upholders of the view that Svapna is Smṛti find something common in both, at least some of the causes of both are common.

We have seen now that some include dream under *Smṛti* and some under *anubhava*. It may be suggested here that the inclusion of Svapna under the former head is due to some resemblance between the two, as some of their causes are in many respects common.[1]

Besides, some call it as Saṁçaya but it appears wrong as Saṁçaya pertains to two things, while Svapna to only one. Some again call it a Viparyaya; although they have some justification, yet they should not say so because in Viparyaya, the sense-organs obviously are at work with the external world while it is not so in Svapna.

Again some include it under *Saṁçaya*[2] and some under *Viparyaya*[3] and some again under both the heads.[4] As to the former, it may be said that in Saṁçaya, knowledge does not pertain to one thing, that is, it hangs between *two* things, while Svapna refers to *one* thing at a time. There may be some doubtful cases appearing in dream but that cannot be the ground to call Svapna a kind of Saṁçaya.[5] As regards the second it may be suggested that as there are dream-cognitions which are valid in nature[6] it will not be proper to call it a Viparyaya without any exception; and also because in Viparyaya the sense-organs are at work while it is not so in Svapna.[7]

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[1] (i) पूर्वोपलब्धेा यथा स्मृतिः...तथा स्वप्ने विषयग्रहणं पूर्वोपलब्धविषयम्— Nyāya Bhāṣya on N.S. IV. 2. 34.

(ii) Nyāyamañjarī, pp. 183-184.

(iii) Vai. Sū. along with Upaskāra, etc., IX. 2. 6-7.

[2] Padārthadīpikā of Kuṇḍa, p. 16^{14-18}.

[3] Tarkāmṛta, pp. 12-13. Jīvānanda's Ed.; Tarkadīpikā, p. 164, Nirṇayasāgara Ed.; Saptapadārthī, pp. 24-25. Viz. Ed.

[4] Padārthadīpikā, p. 16^{14-18}.

[5] Kiraṇāvalī, p. 271. Benares Ed.

[6] *Infra*, pp. 304—311.

[7] Kiraṇāvalī, p. 271.

CHAPTER III.

Definition and Process of Dream.

The Vaiçeṣikas define Svapna as a mental cognition (anubhava) through the sense-organs,[1] when the Manas has retired after the external sense-organs have stopped to function.[2] Some again say, "Svapna is an anuvyavasāya[3] in the form 'I hear this by means of ears,' or 'I perceive this object through eyes,' etc., when there is no activity of the sense-organs. This is a recognition of the previous knowledge through the sense-organs,[4] when the Manas has retired to a place where it has no connection with the outgoing sense-organs which have stopped to function, that is, which no longer bring any impression of the objects of the external world."[5]

The Vaiçeṣikas define it as a mental cognition when the Manas has retired after the sense-organs have stopped the external function.

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[1] Here there are two different readings in the Text: इन्द्रियद्वारेणैव and इन्द्रियद्वारेणैव: In the former case, the meaning would be that the mental cognitions take place in dream, *as if*, through the sense-organs. In this case there is no difficulty. But in the second case, the meaning, as given above, does not appear quite clear. Hence it seems that the phrase 'through the sense-organs' may mean, through imposition, 'through the impressions (saṃskāra) which are produced through the sense-organs and which exist even when the sense-organs are not at work.' It is perhaps therefore, that Udayana says, 'dream-cognitions are series of Sanskāras' (Kiraṇa., p. 273 [15]). It may, on the other hand, mean 'through the sense-organ, *i.e.*, *manas*.' Also consult here Varadarāja's Bodhanī on Kusumā., p. 99; *Infra*, p. 292.

[2] P. P. Bhā., p. 183[13-14].

[3] Literally—an act of knowledge succeeding the one immediately preceding it—the perception of an act of knowledge—as when after perceiving a jar one realises that he has a knowledge of the jar. The second act of knowledge is known as an अनुव्यवसाय. In other words, it is knowledge with the notion of the Self as knower.

[4] Udayana explains the need of the phrase 'through the sense-organs' thus:—Praçastapāda has used *indriyadvārena* to denote that there are some cases of valid dream where the dream-cognition is really through the sense-organ, as 'I am here lying on the bed' and which is a valid dream-consciousness.—Kiraṇāvalī, p. 271[16–17].

[5] *Ibid.*, p. 271 [8–12].

Similarly, the Naiyāyikas also define it as a knowledge which is produced by the Manas which has come into contact with the defects of sleep,[1] due to which defects the things appear in dream as *this* in place of *that*.[2] Others again hold that the contact of Manas with the *Middhā*[3] produces a knowledge which is Svapna.[4]

The Naiyāyikas, on the other hand, say that it is a knowledge which is produced by the Manas which has come into contact with the defects of sleep.

Other schools are nearly at one to hold that dream is a kind of false knowledge.

The dream-process is very clearly given in Nyāya and Vaiçeṣika works. Thus Praçastapāda says, 'Beings tired of their exertions during the day caused by their conscious bodily actions, retire at night with a view either to rest or to enable their food to be digested; and then the contact of the *Ātman* and the *Antaḥkaraṇa*, brought about by an effort due to the force of certain unseen agencies, causes certain functionings in the Manas; and then the Manas retires peacefully into the *antarhṛdaya*—which is beyond the reach of the external sense-organs[5] and then the Manas is said to have retired—*pralīnamanaskaḥ*. The Manas having thus retired, the external sense-organs cease to function. In this state, the chain of Prāṇa (in-breathing) and Apāna (out-breathing) is continued and there appears dream-consciousness having the form of direct cognition, even when the objects of cognition (Viṣaya) are not present, through the sense-organs, due to sleep (Svāpa), which is the name of a particular kind of

The dream-process is shown here in great detail by the Vaiçeṣikas.

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[1] The defect is that the Manas has come into contact with the particular kind of Nāḍī-*Middhā*—Vivṛti on Vai. Sū. IX. 2.7.

[2] Padārthadīpikā, p. 16^{14-18}.

[3] A particular kind of Nāḍī also called Svapnavahā-Nāḍī.

[4] Padārthadīpikā, p. 16^{14-18}.

[5] Kandalī, p. 185^{4}. Viz. Ed.

contact of the Ātman and Manas and to impressions[1] (Saṁskāra).[2]

Similarly, Vallabha School of Vedānta gives some detail of dream-process.

The Mādhva School holds that the desire (Vāsanā) is the Upādāna (material cause), Íçvara is the agent (Kartā), and Adṛṣṭa, etc., is the instrumental (Nimitta) cause of the dream-appearances.[3]

Dream-process worked out according to the Bṛhadāraṇyaka.

The Bṛhadāraṇyakopaniṣad describes the dreaming-process thus: when this conscious Puruṣa falls asleep,[4] He draws towards Himself the capacity of the sense-organs to get the impressions of the external world, through a particular kind of cognition (which manifests itself in the *antaḥ-karaṇa*) and retires in the Ākāça—the antarhṛdaya (that is, the Puruṣa assumes His own svarūpa). Then He is called *Svapiti* and at that time too He has control over the sense-organs and the Manas. There He assumes various forms which are called his dream-cognitions.[5]

CHAPTER IV.

Causes of Dream.

Dream-consciousness is accordingly produced by various causes:

1. *The vividness of the impression*—(Saṁskārapaṭutā)—It often so happens that when a person, having strong

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[1] The 'impression' might be either of this life or that of previous life or even that of previous Kalpas as the Samsāra is without any beginning—Vivṛti on Vai. Sū. IX 2. 7.

[2] P. P. Bhā., p. 183[18–23]; Bhāṭṭacintāmaṇi of Gāgā Bhaṭṭa, p. 26. Chowk. Benares Ed.

[3] Pramāṇapaddhatiṭīkā, p. 14, quoted by Bhīmācārya in Ny. Koça, p. 971 ft. n.

[4] *Vide* Ānandagirī's Com. on Sureçvaravārttika for the meaning of 'Puruṣa falling asleep' verse 893.

[5] Bṛhadāraṇyakopaniṣad 2. 1. 17-18, pp. 202–205; 4. 3. 11; 4. 2. 20, and also consult Çāṅkarabhāṣya on the above, Astekara Poona Ed.

desire for something and thinking constantly of that thing goes to sleep, that same series of thought (cintā-santati) and mental images appear again in dream as direct cognitions.[1] As for instance, a man in love or in anger constantly thinking of his beloved or his enemy gets the direct cognition of his beloved or his enemy in dream.[2] Again, if a man happened to hear the Paurāṇic stories in the day, such as the contest between Arjuna and Karṇa, he will have in his dream, cognition, resembling the perception in the form, 'This is the contest between Arjuna and Karṇa,' which is due to the influence of his previous impression.[3]

The causes of dream-consciousness are:—

1. *The vividness of the impression:* as a man, always thinking of his beloved or his enemy before going to sleep, perceives in his dream his beloved or his enemies.

Another instance: if a person hears the stroy of the contest between Arjuna and Karṇa before going to bed, he sees the same contest in his dream.

2. *The disorders of the bodily humours*—(DHĀTUDOṢA)[4]—(*a*) We find that a man in whose constitution *vāta* is the predominating[5] humour, or in whose body it has become disordered, he sees (in a dream) that he is flying in the sky, running here and there,[6] wandering over the earth flying from the fear of the tiger, etc.[7]

2. *The disorders of the bodily humours:* When there is some disturbance in the normal condition of the three faults—wind, bile and phlegm—in the organism of a person, that person has dreams according to the nature of the faults.

[1] P. P. Bhā., p. 184[2-4].
[2] Kiraṇāvalī, p. 273 [14-15].
[3] Upaskāra on Vai. Sū. IX. 2—7.
[4] Thus Carakasamhitā says:

मनोवहानां पूर्णत्वाद्दोषैरतिबलैस्त्रिभिः ।
स्रोतसां दारुणान् स्वप्नान्काल पश्यति दारुणे ॥

—Indriyasthāna, Adhyāya 5, Verse 39.

[5] Generally according to the Āyurveda the causes of the excitement of the wind(वात) are :—Pungent (कटु), bitter (तिक्त), and astringent (कषाय). But when the above tastes (रसाः) and the fault (wind) come together, it is seen that these tastes excite the fault with which they correspond entirely or very largely in respect of qualities—Carakasamhitā, Vimānasthāna, Adhyāya 1. 3—5, p. 214, Nirṇaya. Ed. Generally windy persons would perceive in their dreams something connected with wind or motion.
[6] P.P. Bhā., p. 184[4-5].
[7] Upaskāra on Vai. Sū. IX. 2. 7.

(*b*) We see that a man, whose constitution abounds in bile (*Pitta*)[1] or whose bile is disordered, feels, in his dreams, as if he were entering into fire, perceives golden mountains encircled with the lustre of the rising sun,[2] embraces flames of fire, perceives the flashes of lightning and the burning of the directions, etc.[3]

(*c*) We see that a man in whom phlegm (*kapha*) predominates or is disordered,[4] sees things, such as crossing of rivers and oceans,[5] drowning in the water, showering of rain, silver-mountains, etc.[6]

3. *The Unseen Forces—Adṛṣṭa*—Some dreams are purely due to the fruition of the Adṛṣṭa.[7] This Adṛṣṭa is either in the form of Dharma or Adharma. Thus things unknown (apratīta), in this life, which indicate the coming of good, such ase—lephant-riding, obtaining an umbrella (which is the mark of a king, hence kingdom), mounting a mountain, eating of milk-cooked rice, etc., things known (pratīta) and acquired (labdha) in this life such as—elephant-riding,

3. *Adṛṣṭa* is the third cause. There are certain dreams, such as, elephant-riding, obtaining or holding an umbrella, etc., which are caused by his previous impressions of the meritorious deeds.

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[1] Similarly, Pungent (कटु), Sour (आम्ल)and Saline (लवण) excite the bile (पित्त). When these tastes and the fault (bile) come together, it is seen that these tastes excite the fault with which they correspond entirely, or very largely, in respect of qualities.—Carakasamhitā Vimāna. A. 1. 3—5. Generally, in such case, the dreams will resemble the various effects of bile as found in the outward and inward expressions of such persons.

[2] P. P. Bhā., p. 184[6].

[3] Upaskāra on Vai. Sū. IX. 2. 7.

[4] Sweet (मधुर), Sour (आम्ल), and Saline (लवण) excite the phlegm; when these tastes and the fault (phlegm) come together it is seen that these tastes excite the fault with which they correspond entirely or very largely. in respect of qualities.—Carakasamhitā Vimāna. A. 1. 3—*b*. Generally, such persons will have dreams which will resemble the various outward and inward expressions of phlegm.

[5] P. P. Bhā. p. 184[7-8].

[6] Upaskāra on Vai. Sū. IX. 2.7.

[7] P. P. Bhā. p. 184[1-2].

obtaining a kingdom, etc., things (known but) not acquired in this life, such as illicit intercourse by a pure Brāhmaṇa, etc., things unknown (apratīta) in this life, such as—ascending the top of the Meru mountain, getting the perception of Devatās (shining ones), bathing in the Mandākinī—the Celestial Gangā,[1] etc., the appearance of all these in dream are due to the merit (Dharma) and impression (Samskāra), if in the previous day the dreamer had happened to hear the Purāṇa.[2] Other than this is due to demerit (adharma) and impression (Samskāra), such as—oiling one's own body, camel-riding, falling down in the darkness, sinking in mire, and similar others, if in the previous day some such things had been thought upon.[3]

On the other hand, there are dreams, such as, oiling one's own body, sinking in mire, etc., which proceed from the impression of the demerits of the past.

But if things or events in no way thought of before and quite unknown, such as—the eating up of the sun and the moon, etc., are perceived in the dream, the cause of these will be only Adṛṣṭa and not Samskāra.[4]

But dreams which can in no way possibly be assigned to the past events, such as, the eating up of the sun and the moon, etc., are purely due to the unseen agencies.

Thus Udayana says, the dream-appearances are produced by the remembrance of the previous events when the impressions of those events are aroused.[5] The awakening is due to the strength of the external objects of sense-organs; or in the long run, the very temperature of the body, etc. (Ūṣmādi); or some other sort of knowledge or even

Udayana lays stress on the fact that the dream-appearances are due to the awakening of the impressions, which itself depends upon the strength of the external objects of knowledge; or the temperature of the body (Ūṣmādi).

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[1] 'मन्दाकिनी वियद्गङ्गा'—Amarakoça I. 1. 49.

[2] Kiraṇāvalī, p. 274[12-13]; P. P. Bhā., p. 184.

[3] Kiraṇāvalī, p. 274[21]—275. [1-2]; P. P. Bhā., p. 184.

[4] P. P. Bhā., p. 184; Kiraṇāvalī, p. 275 [8-9].

[5] Kusumāñjaliprakaraṇa, III. 1, pp. 357-358. Bib. Ed. Vardhamāna's Prakāça on *Ibid.*; Rucidatta's Makaranda on *Ibid.*

the perception of resembling objects.[1] Varadarāja makes it clear by saying that the Manas, accompanied by the remembrance of the various events, which remembrance has been aroused by the awakening of the impression of the past events, is the cause of dream-appearances.

Further it is said that the cause of this awakening itself is the fact that the activities of sense-organs, although very dull, exist even then.

Now the question is raised that at that stage there being no cognition of the external objects how can the impressions be aroused? To this is said, 'Even then the external sense-organs continue to have their activities although the activities are more dull or most dull and thus the objects of the sense-organs will be present in some form or other to arouse the impressions; or they may be aroused by the bodily-temperature (Ūṣmādi), etc., present in the organ of touch, with which the Manas is ever in contact at that stage of consciousness.[2]

Çavara Svāmin holds that the sleep itself along with the weak Manas is the cause of the dream-cognitions.

Çavara Svāmin holds that when a man gets asleep his Manas becomes weak (durbala) and due to this he perceives dreams; thus sleep with weak-*manas* is the cause of false dream-appearances (Mithyābhāva).[3]

Çālikanātha Miçra says that the awakening of the impressions by the Adṛṣṭa is the cause of it.

Çālikanātha Miçra holds that dream-consciousness is due to the awakening of the impressions by the Adṛṣṭa, when a man is asleep. The Adṛṣṭa is the cause of the pleasure or pain which the dreamer feels. Thus if the time during which the man sleeps be such in which the dreamer is destined to feel pleasure, the Adṛṣṭa awakens that much of his impression which will bring pleasure to the dreamer; and so is the case with pain.[4]

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[1] *Ibid.*

[2] Bodhani on *Ibid.*, p. 99. P. W. S. T.

[3] Çabara Bhāṣya on Jaimini Sūtra, I. 1. 5. p. 7^{15-18}. Ben. Ed.

[4] Prakaraṇapañcikā, Ch. V, p. 62; Ch. IV, Verses 44—47.

Upaniṣads, on the other hand, hold that Jīvātman through its māyā is the cause of dream-appearances.

Upaniṣads hold that dream-cognitions are produced by the Jīvātman through its Māyā. Thus, they say, 'Vedāntins hold that the conscious Ātman itself through its Māyā creates forms and it itself is the recogniser of the varieties of those forms.'[1] These forms are nothing but dream-appearances. Again, this Māyā, as if, takes the help of the Manas which itself gets reflection from the Ātman and is the direct cause of dream-appearances.[2] They further hold that this Manas does not remain in the dreaming state as an internal sense-organ but only as a form of Ajñāna with Vāsanās (desires).[3] Sureçvara also does not differ from the above view. He says, 'assuming the body of Bhāvanās (*i.e.*, the body formed out of the Vāsanās of the waking state) and desirous of taking delight in dreams, it (the Jīvātman) creates the various forms such as elephant, etc., due to these bhāvanās.'[4]

So is the view of the Çankara School of Vedānta.

Sureçvara further adds here that the Jīvātman assumes a body of Vāsanās and takes delight in the various forms of dreams.

Similar is the view of the Vedāntins of the various schools. The author of Ratnaprabhā on Vedānta-sūtra, while explaining the Çruti—*Svayam vihatya*, etc.,[5] says, "the Jīvātman itself makes the body of the waking state senseless and prepares a body of Vāsanās through its own consciousness (svarūpa-caitanya) and experiences dream-cognitions."[6]

The author of Ratnaprabhā also supports Sureçvara.

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[1] Gauḍapāda's Kārikā on Māṇḍūkya Upaniṣad, 12, 13, III. 29 and Çankarācārya's Com. on them.

[2] Sureçvara Vārttika, V. 86, and Ānandagirī on it.

[3] *Ibid.*, Verse 375, 376 and 384 and Ānandagirī on them.

[4] *Ibid.*, Verses 908, 977, 1068, with Ānandagirī.

[5] 'स्वयं विहृत्य स्वयं निर्माय स्वेन भासा स्वेन ज्योतिषा प्रस्वपिति'—Bṛhadāraṇyaka; Kaṭhopaniṣad II. 2.8, p. 99. Ānanda. Ed.

[6] Ratnaprabhā on Çankara's Brahma Sū. Bhāṣya III. 2, 4 1. pp. 971, 966, Bombay Ed.

Rāmānuja School, on the other hand, holds that dream-consciousness, which is only Māyā (illusory),[1] is the creation of *Parama Puruṣa*.[2] It holds that it is simply wonderful to create chariot, etc., which exists for that moment only, where there is no chariot, etc.[3] This is not possible for ordinary people to think of even. Such marvellous creations are possible only for *Parama-Puruṣa* who possesses strong Will-power (satyasankalpa), and not possible for Jīva. No doubt Jīva is endowed with strong Will-power, but in the state of bondage it is entirely unmanifest; hence such wonderful creations (of dream) are not possible for Jīva.[4] Vārttika on Çrībhāṣya also supports it.[5]

Rāmānuja, on the other hand, holds that dream-consciousness being illusory is caused by Parama-Puruṣa.

Jīvātman can never be the cause of dream-consciousness which is so marvellous in its nature.

Mādhva School, on the other hand, holds that *Bhagawat* or His Will-power is the cause of dream-appearances. It says that even dream-cognitions cannot appear without Him. Bhagwat, without any other auxiliary, is free in His dream-creations. It is due to His Will-power

Mādhva School holds that Bhagawat or His will-power is the cause of dream-creations.

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[1] The word *māyā* is used in the Rāmānuja School in the sense of 'wonderful' (आश्चर्य). They quote 'जनकस्य कुले जाता देवमायेव निर्मिता' in its support.

[2] This परमपुरुष is also called ईश्वर—Çri Bhāṣya, p. 425. Reprint from the Pandit.

[3] न तत्र रथा न रथयोगा न पन्थानो भवन्त्यथ रथान् रथयोगान् पथः सृजत—Bṛha. Upa.

[4] Çri Bhāṣya on Brahma Sūtra III. 2. 3. p. 424. Reprint from the Pandit.

[5] अतो यथार्थजातं स्वप्नद्रष्ट्रैव दृश्यते ।
तत्कालमात्रसत्ताकं परमाश्चर्यरूपकम् ॥
करोति परमात्मैव सत्यसङ्कल्पतो हरिः ।
जीवसङ्कल्पतो नैव स्वाप्नार्थाः प्रभवन्ति हि ।

—Vārttika on Çri Bhāṣya, Adhyāya III. Pāda 2, p. 96. Chowkh. Ed.

that dream-appearances are found.[1] Thus it is also clear that the disappearance as well as the appearance of the dream-cognitions depend upon Him.[2] He is the only indicator of all kinds of dreams.[3] Thus this school also denies the agency of Jīvātman.

It is due to Bhagwat's will-power that dream-cognitions appear. It also denies the agency of Jīvātman.

Vallabha School of Vedānta also holds that Bhagawat through the instrumentality of His Māyā is the creator of dream-cognitions. Thus Māyā is the *Upādāna Kāraṇa* (material cause) of the dream-appearances.[4]

Vallabha School also holds that Bhagwat, through the māyā, is the cause of dream-cognitions.

Nimbārka School, like that of the Rāmānuja, holds that Parameçvara with His strong Will-power is the creator of dream-cognitions and not Jīva.[5] Thus in every respect this school follows Rāmānuja on this topic.

Nimbārka School also sides with Rāmānuja.

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[1] Ānandatīrtha supports his view by a quotation from Brahmāṇḍa Purāṇa:—

मनोगतांस्तु संस्कारान् स्वेच्छया परमेश्वरः ।
प्रदर्शयति जीवाय स स्वप्न इति गीयते ॥
यदन्यथात्वं जाग्रत्वं सा भ्रान्तिस्तत्र तत्कृता ।
अनभिव्यक्तरूपत्वान्नान्यसाधनजं भवेत् ॥

[2] This also he supports by a quotation from Kūrma Purāṇa:—

स्वप्नादिबुद्धिकर्त्ता च तिरस्कर्त्ता स एव तु ।
तदिच्छया यतो ह्यस्य बन्धमोक्षौ प्रतिष्ठितौ ॥

[3] Mādhva Bhāṣya on Vedānta-sūtra III. 2. 1—10, pp. 114—116, Cal. Ed.

The entire Adhikaraṇa is devoted to Bhakti and for this very purpose the greatness of Bhagawat is expressed in this whole Pāda. The dream-cognition is also dealt with here as caused by Bhagawat and hence as one of His various greatnesses.

[4] Prasthānaratnākara of Puruṣottamajī, p. 9^{16-19}.

[5] Nimbārka Bhāṣya on Brahma Sūtra III. 2. 3-4, Chowkh. Ed.

Bhāskarācārya in his Bhāṣya on the Vedānta-sūtra, on the other hand, holds that Jīva is responsible for the forms of dream and not Īçvara as others hold. He quotes in his support the Çruti[1] which means, 'It is the Ātman (Jīva) which appears to move in the dream.' For the creation of Īçvara, such as Ākāça, etc., is *Paramārtha*—ever valid (as opposed to the dream-cognitions which exist for that moment only), hence because of this difference the creations of Īçvara are different from those of Jīva.[2]

Bhāskarācārya sides with Çankarācārya in holding that Jīvātman is the cause of dream-creations and not Içvara.

He says, 'Creations of Içvara can never be perishable (aparamārthika).'

Āyurveda, on the other hand, believes that the sleeping Prabhu (Kṣetrajña-Jīvātman),[3] by the help of the Manas, which itself is endowed with Rajas,[4] causes dream-cognitions which depend upon their being experienced before (in this life or in the previous) and which are good as well as bad.[5] Carakasamhitā says, 'when a man is not in sound sleep he perceives fruitful or fruitless dreams of various kinds through the Manas which lords over the sense-organs.[6] This also refers to Jīvātman along with the Manas as the cause of dream-cognitions.

Āyurveda also holds that Jīva-Kṣetrajña is the cause of dream-creations, through the help of Manas which is endowed with Rajas.

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[1] 'य एष स्वप्ने महीयमानश्चरति एष आत्मेति'।

[2] Bhāskara-Bhāṣya on Brahma-Sūtra III. 2. 3-4. Chowkh. Ed.

[3] Ḍalhaṇa's Com. on Suçrutasamhitā, Çārīrasthāna, Adhyāya 4. 36.

[4] During the dreaming state the Tamas predominates. Manas is ever present. Then there is the possibility of there being ever dreams in sleep and no Suṣupti. To remove this impossibility it is said that the Manas causes dreams only when it is accompanied with Rajas, as the very nature of Rajas is *Cala* (to move)—Ḍalhaṇa on *Ibid.*

[5] Suçrutasamhitā, *Ibid.*

[6] Carakasamhitā, Indriyasthāna, Adhyāya 5, Verse 40.

Now coming to the Buddhism we find that it holds that there are six kinds of men who experience dreams. In other words, there are six causes of dream-cognitions. These six kinds of persons are :—

Buddhism also holds that dream-cognitions can appear out of six causes :
1—3. Disturbance of wind, bile and phlegm.
4. Influence of God.
5. Habits and (Dharma or Adṛṣṭa).
6. As to the sixth it is said that it is not by the action of any person—God or man, but it enters the mind of the sleeper of itself.

(1—3) he who is of a bilious (Paittika), windy (Vātala) or phlegmatic (Sleṣmika) humour ;[1]

(4) he who is influenced by a god ;

(5) he who habituates himself ; and

(6) he who does so in the way of prognostication.[2] (It may be said that Dharma or Adṛṣṭa is the cause of such dream-appearances.)

Out of these the last is independent. It comes about not by the action of any person, god or man, but it enters the mind of the sleeper of itself and (the dream-cognition of this kind) is explained by one skilled in omens.[3]

Dreams are also caused by the influence of certain Mantras. They hold, if these Mantras were uttered before falling into a sleep, the man who has uttered them will see some dreams in his sleep and which dreams again will bear some significance with them. For example, they cite the Mantras of *Svapneçvarī*—the goddess

Dreams are also caused by Mantra, Yantra and certain herbs.

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[1] These three humours, when disturbed, produce various kinds of dreams. It has been also accepted by the orthodox systems like Nyāya and Vaiçeṣika. Now it is doubtful whether the Vaiçeṣikas borrowed this idea from the Buddhists or the latter from the former. It appears that like so many other kinds of influences, such as, not giving a place to Īçvara in the system, accepting only two kinds of Pramāṇa, etc., Vaiçeṣikas have also borrowed this from the Buddhists. It is perhaps therefore that the Vaiçeṣikas are called अर्धवैनाशिकs.

[2] Buddhist Philosophy in India and Ceylon, by Dr. Keith, p. 194.

[3] *Ibid.*

who presides over dreams. In case it is not uttered, they write out the Mantra on the *Bhūrja leaf* and keep it under the head while sleeping and dreams appear which are all significant. Again, these people generally belonging to the Tāntric School hold like others that there are certain wild herbs and if these are kept under the head before one falls into a sleep, the sleeping man will have dreams which will also be significant. These facts are also supported by Çankarācārya. [1]

It has been marked above that except a few all others have emphasised the necessity of previous impression for the appearances of dream. Merit and demerit no doubt are necessary conditions but they are of subordinate importance. Their duty is to awaken the previous impressions only. Thus they say, 'whatever a man perceives, hears, smells, touches and tastes in the waking state leaves behind some impression (samskāra) on the Ātman.' These impressions are aroused when the sense-organs have stopped to function and there appears a particular kind of contact between the Ātman and the Manas; and then that very man perceives, hears, etc., the same kind of cognition, which is caused by sleep. Thus a man, after he gets up from his sleep, says, 'I had seen a very good chariot while asleep.' Further it is, therefore, said, 'it is only because of this Samskāra that a man has these cognitions. Thus a blind-man, further it is observed, who has never cognised any *rūpa* before, does not perceive (any rūpa) in his dream.' [2]

It has been seen above that except a few all others lay stress on the importance of previous impressions for dream-appearances. Merit and demerit occupy subordinate place.

It is, therefore, that a born-blind does not see any rūpa of this life in his dream.

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[1] Çankara Bhāṣya on Vedānta Sūtra III. 2. 4. p. 283 [2-8] Astekara Poona Ed.; Bhaviṣyapurāṇa, Brāhmaparva, A. 69, p. 74. Bombay Ed.

[2] Candrakānta's Bhāṣya on Vai. Sū. IX. 2. 7.

We do not agree with his statement about the blindman's non-perception of rūpa in his dream. For when we believe in the

But some again hold that there is no necessity of Samskāra for any dream. It is the Dharma only which causes dream-cognitions.

On the other hand, some hold that 'there is no necessity of any samskāra for dream-appearances and, therefore, they say that the Vaiçeṣika Sūtra—*Dharmācca* is introduced. That is, Dharma—merit—is the cause of dream. In order to support their statement they further hold that only then the line [1] of Çrīharṣa is justifiable.[2] This does not seem to be a correct view for obvious reasons.

Now an objection is raised: if dreams depend upon previous events for their occurrence, how can the dreams of Uṣā and Nala, Dhṛṣṭadyumna and Caturmukha who had no previous experience be justified?

An objection may be raised here that if dream-cognitions depend for their occurrence upon their experiences of the past, how can the dream-perception of Damayantī by Nala or that of Aniruddha by Uṣā who had no previous experience; or Dhṛṣṭadyumna's dream-perception of himself being killed by Açvatthāman, or that of Caturmukha who was killed on the very first day of the great battle fought between the Kauravas and the Pāṇḍavas, be justified?

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beginninglessness of the universe, it is quite certain that the blindman must have been born prior to this birth, having eyes. Through these eyes he must have experienced rūpa, which in its turn must have left some impression on his Ātman. Further, for the same reason, we cannot say that all his Adṛṣṭas, due to which he would experience rūpa in dreams in this or in the next life, have been exhausted. Therefore, we cannot say that blindman cannot perceive rūpa because he has not experienced it in this life. It may be due to his experiences of previous births. In this connection *vide* Çankara Bhāṣya on Brha. Upa. 4. 3. 6. p. 333 [11-12], Astekara Poona Ed.; also 'उत्खातचक्षुषां चापि दृष्टिः स्वप्नेऽनुभूयते, etc.'—Sureçvara-Vārttika on Brha. Up. Bhā. Verse 1470 with Ānandagirī's Com.

[1] अदृष्टमप्यर्थमदृष्टवैभवात्करोति सस्रिजनदर्शनातिथिम्—Naiṣadhacaritam, I. 39.

[2] Jayanārāyaṇa's Vivrti on Vai. Sū. IX. 2. 9. p. 343. Gujarati Press Ed.

The answer may be suggested thus: the universe being beginningless, it is possible that these things might have taken place in previous Kalpas and the impression thereby left behind on the eternal Ātman is aroused by Adṛṣṭa in due course of time in dreams.[1] Again, as regards instances quoted from the Mahābhārata it may be said that those people used to hear every day even just before the battle of their being killed by the opposite party and accordingly even when no actual occurrence had left any impression upon the Ātman, there was at least a strong feeling of fear in them. Thus due to that strength of feeling in the night they used to dream the very thing. Again, it might be said after all that they were Devatās and could see their future very easily in their dreams,[2] when they were free from anxieties. Thus it is clear that every dream-cognition depends for its occurrence upon the past experience.

The answer is:

(*a*) As the Samsāra is beginningless these events might have occurred in the past Kalpas and hence the previous impression was present in all the cases.

(*b*) Some of them might have heard of these before in their lifetime and the hearing of sound might have left some impression behind

(*c*) Lastly, some hold that they were Devatās and could very easily see their future in their dreams.

CHAPTER V.

Varieties of Dream.

Dream-cognition has been divided into seven varieties by the Āyurveda,[3] although other schools of Indian thought except a few would like to divide it under two heads only:—True and False. I would also first of all subdivide it under these two heads only and

Dreams are of seven kinds, although they can be reduced to two broad heads: True and False.

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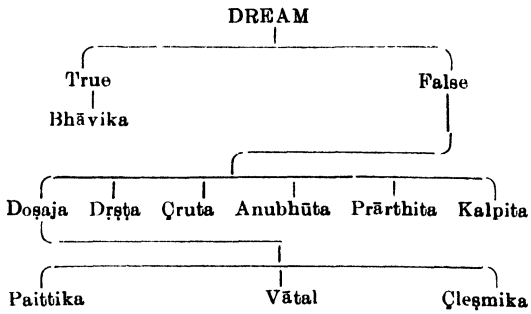
[1] *Ibid.*, Sūtra 7, p. 341.

[2] Madhvasiddhāntasārasangraha, p. 112 b.

[3] Carakasamhitā, Indriyasthāna, Adhyāya 5, Verse 41, Nirṇaya-sāgara Ed.; Vāgbhaṭṭa's Aṣṭāngahrdaya and Aruṇadatta's Com. on it; Çārīrasthāna, Adh. 6, Verses 60-61.

then the latter into five subdivisions. For the facility of reference and treatment I give here a graphical representation of these subdivisions:—

Graphical representation for the facility of easy treatment.



Sureçvarācārya, on the other hand, subdivided it under three heads only:—*Svapna-jāgrat, Svapna-sthaḥ-svapna* and *Svapna-suṣupta.*[1] He does not believe in the validity of dream, hence all these three can be easily classified as the varieties of false dreams.

Sureçvara adds three more to the previous seven.

He does not obviously believe in the validity of dreams, hence all these three may be included under false head.

The author of Muktāphala (Bopadeva ?) adds *Svapna-turīya* as the fourth head to Sureçvara's list.[2]

Muktāphalakāra adds one more to the above.

Buddhism also divides it under six heads and like the orthodox subdivisions these six can be very easily divided, first of all under two broad heads: true and false. The latter again is subdivided under five subdivisions. They are:—Bilious, Windy, Phlegmatic, influenced by a god and due to habits; while the former is only one, that is, Prognosticative or Prophetic.[3] Out of these, the first three exactly resemble the three Doṣajas;

Buddhism also has six varieties. Its treatment resembles very much that of the Nyāya-Vaiçeṣika.

[1] Sureçvara Vārttika, Verses 1057-1058. Ānandāçrama Ed.

[2] Madhusūdana Saraswatī's Īçvarapratipattiprakāça, p. 8. Trivandrum Ed.

[3] Buddhist Philosophy in India and Ceylon by Dr. Keith, p. 194.

the fourth appears to be not very much different from the Prārthita; while that which is due to habits might be included somehow or other under Dṛṣṭa or Çruta or Anubhūta of the orthodox school as given above.

Now one after another I shall explain here all these subdivisions. I first take up the false subdivisions, which have been explained by Arunadatta as follows[1] :—

Detailed treatment of the varieties of the dream-cognitions.

1. *Doṣaja* is that form of dream-consciousness which is produced by the defects of bodily humours—Bile, Wind and Phlegm. In such dreams the cognitions are experienced exactly resembling the bodily-humours.

Doṣaja: due to faults :—wind, bile, and phlegm.

2. *Dṛṣṭa* is that kind of dream in which a man while asleep experiences in forms of knowledge (samvitti) all the things which he had perceived through his eyes in the waking state.

Dṛṣṭa, which depends upon things seen through eyes.

3. *Çruta* is that sort of dream in which a man while asleep experiences all the things which were cognised through the sense of hearing in the waking state, in that very form of knowledge (Tādṛksamvittirūpatayā).

Çruta: depends upon the hearing of the events in the past.

4. *Anubhūta* is that kind of dream in which a man while asleep experiences all those things which were generally experienced through the organs of sense in the waking state, exactly in the same form of cognition.

Anubhūta: which depends upon the general experience of all the sense-organs.

5. *Prārthita*, on the other hand, is that form of dream-consciousness in which a man while asleep experiences all those things, which were experienced either through eyes or ears or other organs of sense and were very much

Prārthita: which chiefly depends upon the strength of the desire of anything in the past.

[1] Aruṇadatta's Com. on Aṣṭāngahṛdaya, Çarīra. A. 6, Verses 60-61.

desired by the Manas in the waking state, in the very forms of cognition.

Kalpita: it depends upon the free and swift motion of the Manas without the help of the sense-organs, in the past.

Kalpita, the last false subdivision, is that form of dream-consciousness in which a man while asleep experiences all those things, which were neither cognised by any of the six kinds of Pramāṇa, nor heard of, nor known (anubhūta) and because of these not also strongly solicited for but only were imagined in good many forms by the unrestrained Manas in the waking state, in the very forms of cognition.

Bhāvika: it may depend upon the previous Dharma or only Adṛṣṭa of the dreamer.

7. *Bhāvika* the only subdivision of true dream is that in which a man, while asleep, perceives dream, which is quite different from the other varieties of it and which is directly perceived, by the same dreaming man when he gets up from his sleep, as actually taking place. This is known as Prophetic dream. In this case the instances of Ūṣā and Aniruddha, Nala and Damayantī, the death of Dhṛṣṭadyumna, and Caturmukha—the personages of the Mahābhārata and various others may be cited.

Explanation of Sureçvara's subdivisions of dreams.

Sureçvarācārya gives his own explanation of his three subdivisions of dreams.[1] Thus—

1. *Svapna-Jāgrat* is that kind of dream in which a man, although asleep, performs actions like the waking-state.

2. *Svapnasthaḥ-svapna* is that form of dream in which the sleeping man experiences or dreams the very dreams.

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[1] सुप्तोपि कर्म कुरुते नरः स्वप्ने प्रबोधवत् ।
स्वप्नजाग्रत्तथारूपं स्वप्नः स्वप्नात्मकोऽत्र यः ॥
दृष्ट्वाऽपि यत्समाख्यातुं प्रबुद्धो नैव शक्नुयात् ।
ताद्धक्स्वप्नसुषुप्तं स्यात्———Sureçvara Vārttika with Ānandagirī, Verses 1057-1058.

3. *Svapna-suṣupta*, the last one, is that form of dream in which the sleeping man experiences various dreams but is unable to express them when he gets up. This may be due to the vague character of the dreams themselves, or the dreamer must have fallen into long dreamless sleep just after the dreams and due to which he might have forgotten them when he got up.

Explanation of the subdivisions of dream according to Bopadeva.

Although the author of the *Muktāphala* (Bopadeva?) uses nearly the very terms which Sureçvara has used yet there is some difference in their meaning.[1] Hence the meaning of the terms used by the author of Maktāphala is given below:—

1. *Svapna-jāgaraṇa* is that form of dream wherein a sleeping person obtains some *yantra*, etc., through the kindness or grace of gods and others; or it may mean an act of knowledge (*anubhava*) of *rūpa*, etc., in the dream, through the sense-organs belonging to dreaming-state (*Svāpnairevendriyaiḥ*).

2. *Svapna-svapna* is that form of dream wherein a sleeping man dreams a dream within a dream, as 'I have perceived a dream'; or it is Remembrance, etc., through the Manas of the dreaming-state.

3. *Svapna-suṣupti* is a kind of *vṛtti* which is inactive, during the dreaming-state and which cannot be expressed in the form of any judgment even after the dreamer awakes.

4. *Svapna-turīya* is a kind of *realisation* (anubhava), in a dream, of the sense of the Çruti—'I am alone every thing,' either through the fructification of the previous merits of the dreamer or through the teachings of a preceptor present at that place.

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[1] Içvarapratipattiprakāça of Madhusūdana Saraswatī, p. 8.

CHAPTER VI.

Validity and Non-validity of Dream.

We have seen in the previous chapter that dream is either true or false, and we find that it is so in reality. There are dream-cases recorded in our Purāṇas which came to be true just after the dream took place or after a long time. The dreams of Vṛndā,[1] Dhṛṣṭadyumna[2] and Caturmukha[3] may be cited as examples of dreams proved valid just the next day, while those of Trijaṭā,[4] Bhānumatī[5] and others as cases proved valid after a long time.

Enumeration of dreams which proved to be true in future.

Almost all the different schools[6] had to face this problem and had to accept that there are some dreams which occasionally become true. Thus beginning with the Nyāya-Vaiçeṣika we see that Udayanācārya says, 'some dreams turn to be true as it corresponds to the actual facts taking place. Although it is only accidental yet it cannot be said to be without a cause, otherwise all the dreams would become so.' Thus not finding any psychological explanation for this the author says, 'Merit—dharma, not necessarily accruing from a man's past

Nearly all the different schools believe that there are some dreams which are true.

Udayana says, 'even such truthful dreams must have some cause, otherwise why not all the dreams become such' and that cause is *Dharma*.

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[1] For her dream *vide* Çivamahāpurāṇa, Rudrasamhitā, Yuddhakhaṇḍa, Adhyāya 23, verses 4—7, p. 119. Bombay Ed.

[2] Mahābhārata and Madhvasiddhāntasārasangraha, p. 112 b$^{2-10}$.

[3] *Ibid.*

[4] Vālmikīya Rāmāyaṇa, Sundarakāṇḍa, Adhyāya 27.

[5] Mahābhārata, M.S.S.S., p. 112 b $^{2-10}$; Veṇīsamhāram, Act II.

[6] The Māyāvādins do not accept the validity any way just as they do not accept the reality of the world. N. Koça, pp. 969—971.

deeds but from the practices of it, is the cause (of such truthful dreams).'[1]

Pandit Raghunātha supports Udayana's view.

This view of Udayana is also supported by Pandit Raghunātha who holds that, 'dreams if produced by *Dharma* is included under *Pramā*—right knowledge,' that is, it is valid; if, on the other hand, it is produced by *Adharma* it is included under *Apramā*—invalid knowledge.[2] The instance of the former case generally given is, when a man dreams, 'I

[1] Kusumāñjaliprakaraṇa, Stavaka V, 17, p. 236. Bibl. Ed. Vardhamāna, a commentator on Kusumāñjali, raises an objection here. Thus he says, 'Manas is dependent upon the sense-organs in its function with the external world in cases of right cognition (Pramā), that is, it has to depend upon the sense-organs to cognise rūpa, rasa, etc., but in the case of dream which is not a Pramā the Manas is not bound to function in agreement with the sense-organs as regards the external world (p. 236. Bibl. Ed.).

This explains why dreams are generally false. But at the same time this very argument helps us to draw a conclusion why some dreams occasionally become true. It may be thus explained: the Ātman is *vibhu*, that is, it is all-pervading and accordingly comes in contact with all the *Mūrta-dravyas* and the Manas is also ever-present with the Ātman. Now one thing more may be said here. The Nāḍīs, like a fine net-work (Sureçvara-Vārttika, Verse 334), are spread everywhere in the universe and through these Nāḍīs the Manas can move anywhere it likes. Accordingly in dreams when it is independent it goes out through these Nāḍīs; and as Vardhamāna also holds (Kusum. Prakāça, Stavaka. V, p. 235) that the Manas, along with some particular auxiliary, is quite independent in its function outside the body in dreams, the Manas gets impression of events not known before and taking place in a distant space and time, or that which is to happen in future; for truly speaking at that stage there is no question of time and space. The Ātman as well as the Manas is beyond these and thus it is quite possible that the events of so-called future may appear there and leave impression on the Ātman or the Manas as some schools of Indian thought would like.

Now as to the question: why then not all the events of future appear there, the answer is that the appearance of future or past events depend upon *Sahakāri-viçeṣa* which is the *dharma* here. Thus only those whose *Sahakāri-viçeṣa* is present will come up and not others. This view is also supported by Sureçvarācārya when he says, "the Ātman endowed with the Adṛṣṭa and knowledge perceives, both this world and the next in dream" (Sureçvaravārttika, Verses 840, 843, 846). Also further on he says, "the Ātman perceives in dreams events which cannot be fulfilled in this life" (*Ibid.*, Verse 853).

[2] Padārtharatnamālā, p. 34 [15–20]. Reprint from the Paṇḍit.

am here lying on the bed' he finds that it is really so, when he gets up.

Other schools also give some sort of explanation of their own. Thus the Āyurveda holds that dreams of the kinds of Dṛṣṭa, Çruta, Anubhūta, Prārthita, Kalpita, and Doṣaja and also dreams seen during the day-time, and which are very short or too long are all false.[1] Dreams seen in the first part of the night bear fruit after a long time and are quite insignificant. Dreams after which the dreamer does not fall asleep, or dreams seen at the end of the night when the cattle are let loose for grazing, bear fruit very soon or the very next day and the results are also very significant.[2]

Āyurveda also holds that Dṛṣṭa, Çruta, Anubhūta, Prārthita, Kalpita, and Doṣaja and day-dreams, dreams seen in the first part of the night, are false.

While dreams seen in the very early morning or dreams after which the dreamer does not sleep are true.

The above consideration of time shows that the Āyurveda emphasises the fact that if a man is free from all sorts of mental, and bodily or worldly anxieties and is pure at heart his dreams will be valid. In other words, it is due to the preponderance of Tamas or Rajas that our dreams become untrue but as soon as the Sattva overpowers them the dreams become valid.[3]

Āyurveda appears to emphasise the fact that if a man is Sāttvika his dreams will be true.

Vijñānabhikṣu also says, 'it is decided in the Çāstras that, only dreams are the indicators of future events.'[4] This shows that they are not false but have some meaning in them.

Vijñānabhikṣu is of opinion that dreams are only indications of future. Hence it may be said that dreams are according to him also significant.

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[1] Carakasamhitā-Indriyasthāna, Adhyāya 5, Verse 42; Aruṇadatta's Com. on Aṣṭāngahṛdaya, Çārīrasthāna, A. 6, Verses 62—64.

[2] *Ibid.*

[3] This is not true of the dreaming state only but if a man be very Sāttvika all his desires of the waking state must come to truth. Such people are known as सत्यसंकल्प and it is therefore that Bhavabhūti says 'ऋषीणां पुनराद्यानां वाचमर्थोऽनुधावति' Uttararāmacarita I. 10; also *vide* M.S.S.S. p. 112b.

[4] Yogavārttika, I. 11. p. 36 9-10. Cal. Ed.

The Çankara School of Vedānta is not also deadly against the view that some dreams are significant and thus valid.[1] Of course, the very Vedānta-sūtra[2] is clearly indicative of this view. It says, 'the learned in the interpretation of dreams holds that dreams are indicators (of future events), as this is supported by the Çruti.' The Çruti says, "If a woman is perceived in dreams in connection with the desired objects, one should understand that the dreamer will be prosperous."[3] Again the Çruti says, 'If a man perceives in his dream a person of black complexion or having black teeth it should be known that the dreamer will be killed.'[4] Even Çankarācārya says, 'Dream being only an illusion is there no truth in it?' 'No,' he says, 'dreams are indicators of the future good or evil.' Further he says, 'It is accepted that dreams produced by Mantra. (influence of) gods and particular kinds of Dravyas have a slight touch of truth in them.' He holds that the indicated facts or events have truths in them but the indicator, for instance, the perception of the woman in dream, is no doubt false, as when the dreamer gets up he does not find the woman anywhere.[5]

The Vedānta also shows that some dreams are true.

Çruti also supports that some dreams are indicators of future and hence true.

Çankara also holds the same view.

Further he believes that dreams produced by Mantra, gods and particular kinds of herbs are slightly true. He adds that the indicated events have truths but not the indicators, such as the perception of a black woman, who is not found to exist after sleep

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[1] Çankara Bhāṣya on Brahma Sūtra III. 2. 4., also *vide* Saṅkṣepa Çārīraka I. 338; Ratnaprabhā on Çankara Bhāṣya, p. 969, Bombay Ed.

[2] सूचकश्च हि श्रुतेरा चक्षते च तद्विदः—III. 2. 4.

[3] Chāndogyopaniṣad, 5. 2. 7; Çankarabhāṣya on Brahma Sūtra III. 2—4. p. 282. Astekara Ed.

[4] Quoted by Çankara in his Bhāṣya. *Ibid.*

[5] *Ibid.*, p. 283. For the interpretation of dreams good or evil *vide Infra* pp. 316—318.

Rāmānuja also holds that the dream-appearances are indicators of good and evil events of the future, and it is, therefore, that he holds that Īçvara, who is omniscient and omnipresent and whose creations cannot be false, is the cause of the dream-appearances.[1]

Rāmānuja also supports the above view adding that dreams being created by Parama-Puruṣa must not be false.

Pūrṇaprajña, the author of Mādhva Bhāṣya, holds that the dream-appearances are all true as these are produced by the desires of the Manas, and Parameçvara Himself is the agent there ; hence they cannot be false. But no doubt the knowledge, that elephant, etc., seen in the dream has got real existence in the outer world at that very moment, is false.[2]

Mādhva School holds that all dreams are true although the dream-appearances do not tally with reality in the external world at that moment.

Vallabha School also in some respects holds that dreams are not fully valid but somehow or other due to the influence of gods they might be partially valid.[3] As to the question how a man gets the actual perception of Devatā and gets boons, etc., in dream, the answer is given that the Devas like Indra, etc., possessing the yogic powers enter the heart of the dreamer just as they do in samādhi and appear before the dreamer and give him some boon. At that time Buddhi is ever ready to receive the impressions and the Jīvātman, the spectator of the dreams, also apprehends them. But this cognition is *alaukika* as there is no *indriyārthasambandha*.[4]

Vallabha School also in some form supports that some dreams are true.

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[1] Çrī Bhāṣya on Brahma Sū. III. 2. 3-4. Reprint from the Paṇḍit.

[2] Mādhvabhāṣya on Bra. Sū. III. 2. 3-4; Nyāyakoça, pp. 970-971, Second Ed.

[3] Aṇubhāṣya on Bra. Sū. III. 2.1. pp. 880-881. Chowkh. Ed. Prasthānaratnākara of Puruṣottamajī, p. 9.

[4] Prakāçaṭīkā on Aṇubhāṣya, pp. 880-881.

In Paurāṇic literature also we find a similar treatment of dreams. The Purāṇas give in detail that dreams seen in the first watch (yāma) of the night are fruitful in a year; that of the second watch in six months; that of the third watch in three months; that of the fourth in a fortnight; and dreams, seen just before the dawn, will bear fruit in ten days; while dreams, after which the dreamer does not fall asleep, will be fruitful in a single night. Brahma-Vaivartta Purāṇa adds that if the dreamer is aroused in the very early morning when he is dreaming, that dream will be fruitful then and there.[1]

Purāṇas are all at one to hold that dreams seen at some particular time must be significant and hence true. Other dreams are not so.

Even the Dharmaçāstra literature has to some extent asserted the view that dream-cognitions are valid; and accordingly, it holds that if anybody happens to see in a dream that he is taking the food of a person whose food he should not have taken up, the dreamer should perform a Prāyaçcitta the next day.[2] Many have explained this fact in a different way and have shown that its implication is not valid but only imposed. In other words, due to nescience the taking up of food is imposed upon Jīva.[3] Again, it is said that if a man happens to see a woman in his dream and due to her attractions, and the weakness of his sense-organs if his semen falls down, he

Dharmaçāstra also supports that some dream-appearances are true by laying down Prāyaçcitta for those who eat up the food of untouchables or who allow their semen to fall down being attracted to a woman in the dream.

[1] Agnipurāṇa. A. 229; Çivamahāpurāṇa, Rudrasamhitā, Yuddhakhaṇḍa, A 23. Verses 4—7; Bhaviṣyapurāṇa, Brahmaparva, A. 69, p. 75: Vālmikīya-Rāmāyaṇa, Sundarakāṇḍa, A. 27; and also *vide* Śrī Rāma's Com. on Verse 9; Brahma-Vaivartta, Gaṇapatikhaṇḍa, A. 33, Verses 34—60, marking specially Verses 34 and 60; Çrīkṛṣṇajanma-Khaṇḍa, Adhyāya 77; for other references *vide* Devī Purāṇa, A. 22; Kālikāpurāṇa, A. 87, and Matsyapurāṇa, A. 216.

[2] Aṇubhāṣya on Brahma Sū. (and Prakāçaṭīkā on it) III. 2.1. pp. 880-881; Prasthānaratnākara, p. 9.

[3] Prakāçaṭīkā on Aṇubhāṣya, p. 880.

should perform a Prāyaçcitta in the form of sixteen Prāṇāyāmas.[1] This also shows that there is some idea in the mind of the writer about the validity of the dream, for if it were altogether false, there was no necessity of performing any Prāyaçcitta. Sureçvarācārya refutes this view saying that the Manas, which is the substratum of Kāma (desires—here sexual-desire), does not really exist in that state in which it can have some attraction for a woman, and he says, 'it possesses only Vāsanā and nothing else at the state.'[2] But even then if closely seen we will have to support the Nibandhakāra.

The view of the Dharma Cāstra is refuted by Sureçvara who holds that Manas the substratum of Kāma is unable to act as such in dreams.

But there is some truth in the opinion of the DharmaCāstra.

We have seen above[3] that Buddhists also believe that there is one kind of dream which is valid.[4]

Buddhists also believe that a particular kind of dream is true.

Thus from the above it is clear that in some form or other almost all the schools have accepted that some dreams come to be true. It is also clear that no school accepts that all dreams are valid except the Mādhva School. According to this school, dream depends upon Bhagawat for its occurrence and thus it is very difficult to hold that it can be untrue in any way.

Thus it is clear that somehow or other nearly all the schools believe the validity of some dreams. Mādhva believes that dreams cannot be false.

It may be also suggested here that according to those who hold that dream-cognition is mere Remembrance, it will not be difficult to assert occasionally the validity of it; for remembrance is both valid and invalid.

Thus those who hold that dream is Smṛti may easily support that some dreams are valid as only some Smṛtis are valid.

[1] प्रायश्चित्तं तु तस्योक्तं प्राणायामास्तु षोडश—Quoted by Ānanda. in his Com. on Sureçvara-Vārttika, Verse 1012.

[2] Sureçvara-Vārttika, Verses 1018-1019.

स्वप्ने चेन्द्रियदौर्बल्यात् स्त्रियं दृष्ट्वा क्षरेद्यदि।

[3] *Vide supra* p. 297.

[4] Buddhist Philosophy in India and Ceylon, by Dr. Keith, p. 195.

Thus the remembrance of events unmixed in dream-consciousness will be a case of valid dream and that of mixed may be a case of invalid dream.

CHAPTER VII.

Objectivity and Subjectivity of Dream.

As to the dependence of dreams upon the events of the external world Nyāya-Vaiçeṣika fully support it.

Now the question is: if dreams are generally illusions and occasionally true whether they depend upon the external world or not for their occurrence. Both Nyāya and Vaiçeṣika are at one to hold that dreams are really objective and the only subjectivity in them is that the exact forms, in which the events took place in the past, are generally destroyed and are presented to us in a mixed form. In other words, the dream-appearances are based on the actual events of the past but in dream some portion of one event is taken and presented to us mixed with some portion of another event. This amalgamation is purely subjective. That is, there can be no dream-consciousness of any event which had not taken place in the past, either in this life or in previous lives or even in the previous Kalpas as the Samsāra is beginningless. Thus it is said that the dependence may be either direct (Sākṣāta) or indirect (Paramparā).[1] Hence somehow or other when the impression of the past is awakened in sleep, dream appears. Here we agree with Freud who holds that the *manifest content* depends upon the *latent content.*[2]

They hold that the displacement of facts is only subjective.

Thus we agree with Freud to hold that the manifest content depends upon the latent content.

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[1] Nyāyabhāṣya on N. Sū. 4. 2. 34; Tātparyaṭīkā, p. 467. Viz. Ed. Viçvanāthavṛtti, p. 290. Cal. Ed.

[2] Conflict and Dream, by Dr. Rivers, p. 3.

It is because of this that some hold that a born-blind cannot perceive any rūpa in his dream.[1] If at all, that must be due to his impression of the past lives, being awakened.

The peculiar appearances of dreams such as cutting one's own head, etc., are due to the Law of Displacement which is purely subjective and a characteristic of dreams.

Now a question is raised here: If it be so, how can dream-cognitions, like 'his own head being cut off by himself,' 'himself eating up his own body' and similar others, will be justified? These could not happen before. To this is said that the dreamer had no doubt seen his own body and also something being cut off.[2] Now these two facts are purely objective but due to the peculiar nature of dream these two facts are joined together and appear as something strange. This is known as *Displacement* in dream.[3] In plain words, this displacement is a case of perverse knowledge. Thus displacement is a very important factor in dreams.

Nearly all the schools of Indian thought[4] stick to this view. Those who differ from this hold that dream-cognitions are the various forms of Brahman itself and it is through its Māyā that the dreams appear. But even there we would like to say that the dream-creations although due to Māyā, are not without the influence of previous creations. For instance, when they say that there was no chariot and a chariot was created, I would like to say that the created chariot is influenced by Māyā's own previous creation of chariot. Thus it is clear that dream-cognitions depend upon past deeds. But this may not be said of those dreams which are indicators of future good or evil.

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[1] Candrakānta's Bhāṣya on Vai. Sū. IX. 2. 7. For the criticism of this view *vide supra* ft. n. on pp. 298-299.

[2] Viçvanāthavṛtti on N.S. Bhā. 4.2. 34. p. 290. Cal. Ed., Vai. Sū. Vivr. IX. 2.7 ; Çāstradīpika under I. 1.5, p. 58. Nirṇaya Ed.; Bhāṭṭa-Cintāmaṇi, p. 26 ; Nyāyaratnākara on Çlokavārttika, Verses 192-193, pp. 264, 242-243, Ben. Ed.; Dr. Jhā's P.S.P.M. p 31 ; Bhāskara Bhāṣya, p. 161, Chowk. Ed.

[3] Dr. Rivers' Conflict and Dream, p. 111.

[4] All the references of *supra*, p. 313 No. 2. ft.n.

CHAPTER VIII.

Characteristic and Significance of Dream.

In this chapter we shall describe those characteristics of dream which have either not been dealt with before or not clearly explained. We shall also discuss here what is the importance of dream in the life of conscious beings.

Various characteristics of dream summed up here.

The dream-appearances have got no outward existence at the time of their occurrence. That is, the dream-cognitions are not products of sense-organ and object-contact (*indriyārthasannikarṣa*).[1] This fact is made clear when we see that the dream-cognitions are negatived in the waking-state.[2] Just as we have seen that dream-cognitions do not tally with the actual existence of things, so is the case with time. In other words, they do not take into consideration time at all. Events of different ages, in a very short time, are joined together and are made to appear as taking place simultaneously.[3] Sarvajñātma Muni has given a very fine line to indicate this idea.[4] It is because of these that generally several dream-cognitions are untrue. It is a peculiar nature of dream that things known in different connections are presented together in such a way, by the Law of Displacement if we can call it, that it gives a new and strange figure to it. This is known as *Anyathākhyāti*

There is no consistency of time and space in dreams.

In dream we apprehend all the five objects of knowledge through the five sense-organs.

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[1] Nyāya Bhāṣya, p. 234.

[2] Çāstradīpikā, p. 52.

[3] Çankara Bhāṣya on Brahma Sūtra III. 2. 3.

[4] सुप्तो जन्तुः स्वल्पमात्रेऽपि काले
कोटीः पश्येद्वृत्तसंवत्सराणाम्।
पश्येत्कोटीरेवमागामिनां च
जाग्रत्काले योजयेत्सर्वमेतत्—Sankṣepaçārīraka II. 130.

Also *vide* Vidvanmanorañjanī on Sadānanda's Vedānta-sāra, pp. 77-78. Cal. Ed.

also.[1] In dreams we not only appear to have direct perceptions (sākṣātkāra) through our eyes but we even get perception through all the five sense-organs. Not only this we even appear to make inferences there.[2]

We make inferences in dreams.

Dream-cognitions, like the cognitions of the waking state, are not permanent.[3] It is, therefore, that they do not possess the Vyāvahārikī Sattā, *i.e.*, they are not fit for practical use in our life. They exist only as long as they are perceived.[4] Hence they have been described as having very swift motion (like a lightning).[5] It is also called *Taijasī Avasthā*;[6] and it is an indicator of the future.[7]

Dream-appearances are momentary in nature. Hence they have only Prātibhāsikī Sattā.

The dreaming state is also called Taijasī Avasthā.

The dreaming state has been called in the Upaniṣad as *Sandhyam* which means a joining point. Some have explained it as the period between this world and the next world. Hence, they hold, that at this state a man perceives events both of this and the next world. Thus it is one of the causes for the existence of the other world.[8] It is, therefore, that Sureçvarācārya says, "out of the three states of human life—childhood (Çaiçava), youth

This has been called also *Sandhya*—a joining point. Thus some hold that during this period the events of both this world and the next are seen.

Thus it proves the existence of the other world.

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[1] Bhāṭṭacintāmaṇi, p. 26.

[2] Kiraṇāvalī (with Rasasāra), p. 273 [9-10].

[3] Sānkhyapravacanabhāṣya, p. 173.

[4] Çabarabhāṣya, p. 7.; Çrībhāṣya, p. 425; Çrībhāṣya-Vārttika, p. 96; Çankarabhāṣya on Māṇḍūkyakārikā IV, 38, p. 58, Astekara Ed.

[5] Çankara on Māṇḍūkyakārikā IV. 38. p. 58. Astekara Ed.

[6] Sureçvaravārttika, Verse 1065; Māṇḍūkyopaniṣad, 4th Pāda, p. 4. Astekara Ed.

[7] Vedānta Sūtra III. 2. 4.

[8] Sureçvaravārttika, Verses 840, 846. Çankara and Bhāṣkara Bhāṣyas and Ratnaprabhā on Çankarabhāṣya on Brahma Sū. III. 2. 1.

(yauvana), and old age (vārdhakya), it is the former state in which it is possible to have dreams as regards the other world. In that state a child has not as yet experienced any worldly pain or pleasure which may form the substratum of his dream-cognitions; we cannot, on the other hand, say that a man has no dream in his childhood, for we perceive him laughing, weeping, etc., while asleep. Thus it is clear that the child dreams of the other world. So is the case with an old man. Generally it so happens that an old man perceives such dreams which he had not experienced in his present life. Such dreams, hence, are about the next world to which he is ever desirous of going. But at the same time a youthful man cannot have dreams of the other world; for generally his dreams are of this world which has enveloped him for the time being."[1]

It is because of this, Sureçvara says, 'only children and old persons have dreams which can prove the existence of the other world.'

It is further said that at this stage (dream-state) of life Jīvātman experiences pleasures and pains. It is held that Jīva, with a view to experience pleasures and pains of insignificant (Kṣudra) deeds, retires to the *Sandhyasthāna*.[2] From this it is clear that just as a man reaps the fruit of his past deeds in the waking state, so he does in the dreaming state also. We know that every action of ours whether mental (in the form of desires, etc.), or bodily, necessitates its Bhoga. Thus it may be suggested here that the various dream-appearances may be the Bhoga of our previous desires. In this respect we can fully agree with the present-day Dream-Theory of the West that our dreams are *Wish-fulfilments*.

The Jīvātman experiences bhogas at this stage.

In this respect it resembles the waking state.

Every desire or action of ours necessitates its Bhoga and as some of these Bhogas are done in the dream, we can agree with the present-day Theory of the West that our dreams are *Wish-fulfilments*.

[1] Sureçvaravārttika, Verses 841–843. Also consult N. Sūtra III. 1. 19, with the Bhāṣya on it.

[2] *Ibid.*, Verses 449, 450, 990 and 992.

CHAPTER IX.

Interpretation of Symbols in Dream.

From time immemorial it has been held in India that dreams are not merely accidental and insignificant but have some definite meaning. But it is very difficult to interpret always the exact sense which they indicate. It is due to their vague nature. No scientific explanation can be given to each and every dream and we have to depend entirely upon the Çāstras where they have been interpreted for ever.

Some suggestions are given here to interpret the significance of dreams.

But some suggestions can be given which may help us to understand their nature even without the knowledge of the Çāstras.

Dreams may be divided under two broad heads: 1. *Auspicious Symbol* which indicates the future good, and 2. *Inauspicious Symbol* which indicates the coming of evil. The former again, according to its nature, may be divided under two heads :— (a) *Having good appearance* and (b) *Having evil appearance.* Similarly, the latter may also be divided under two heads : (a) *Having evil appearance,* and (b) *Having good appearance.*

Dreams are either auspicious or inauspicious.

Both auspicious and inauspicious dreams have either good appearance or evil appearance.

Now taking the former head into consideration we see that the *auspicious symbol, having good appearance*, is somehow or other connected with good spirits (Devas or Devīs) of Indian mythology, or sometimes with something good of the actual life. For instance, ' riding on the elephant (specially white)' is connected with the elephant *Airāvata* of Indra the king of the gods ; ' riding on ox or bullock' is connected with *Nandī* the bullock conveyance of God Çiva ; 'riding on tiger or lion ' is connected with the conveyance of the Goddess Durgā ; ' holding a Vīṇā (flute)' is

Dreams of the former kind having good appearance may be connected with the good spirits. Some examples are given here.

connected with the musical instrument of the goddess of learning—Saraswatī; 'mounting on the mountain' may be connected with the Kailāça, the abode of God Çiva, or the Himālaya, the abode of the father of the goddess—Pārvatī—the wife of Çiva; 'riding on horse' may be connected with Uccaiḥçravas, the horse of Indra; perception of everything white, such as white flower, white flag, white lotus, white cloth, white (pure) sky, water which has white colour, etc., is connected with the Sattvaguṇa; perception of Agni, Brāhmaṇa, preceptors, and similar others are all connected with the various gods of the Hindus, hence all these seen in dreams are indicators of good in future.

And those having evil appearance may be connected with something good of this world. Some examples are given here.

Similarly, those having apparently evil appearance, such as 'setting fire to a house, cutting off heads, eating of raw meat smeared with blood,' etc., may be connected with the defeating and crushing of one's own enemy; 'dying' is not considered to be a bad thing in Indian philosophy, for thereby a man is relieved of the pains for the time being and for ever, if he deserves final beatitude after death; 'drinking wine' may be connected with the *Soma-drinking* of gods, and similar others are all indicators of good.

Dreams of the latter head having evil appearance may be connected with evil spirits of Indian mythology. Some examples are given here.

Taking the latter head into consideration we find that *inauspicious symbol, having evil appearance*, is somehow or other connected with the evil spirits—Daitya, Dānava, Rākṣasa, God of Death, from worldly point of view, etc. Thus 'riding on black buffalo, going towards south, perception of strange evil spirit-like figures,' etc., may be connected with the god of Death and his abode; 'perception of everything black' may be connected with the Tamoguṇa which is the cause of Nescience; 'perception of naked figures or himself in bare nakedness,' etc., may be connected to the figures of hell

(Naraka) where the sinners are kept in bare nakedness, and hence all these are indicators of evil future.

Similarly, dreams *having obviously good appearance*, such as, 'marrying himself, or perception of marriage ceremony' indicate bad future, for marriage after all adds pains to a person, which everybody likes to get rid of; 'perception of anything red' as red flower, red cloth, blood, etc., may be connected with death or the God of Death, who, endowed with the Rajoguṇa (which is denoted by redness), gives punishment. Thus these are evil dreams. Similarly, other symbols may be explained.

And those having good appearance may be connected in various ways with evil future. Some are given here with illustrations.

But there are dreams which are so vague that it is impossible to make out any meaning reasonably from them. In such cases we have to depend fully on the Çāstras and their sincere interpreters.

Besides these some are so vague that it is difficult to give any explanation.

CHAPTER X.

SUṢUPTI.

So long the Manas was busy to get Bhoga for the Jīvātman and when that Bhoga is exhausted the Manas retires to a place where there is no sense of touch (Tvagindriya) even. The place where the Manas exists in that state is known as *Purītat*. It is situated in the heart. When Manas enters into it there is no knowledge of whatever kind. This period is known as the state of *suṣupti*.[1] 'This is also of three kinds' says Sureçvarācārya.[2]

When the Manas busy with the Bhoga of the dreaming state retires into the Purītat, Suṣupti overcomes a man.

There is no knowledge in this state.

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[1] Nyāyalīlāvatī-prakāça-vivṛti of Bhagiratha Ṭhakkura, MS. p. 66a [10–11].

[2] Sureçvara Vārttika, Verses 1058-1059.

The psychological process of this Suṣupti.

This process of the retirement of the Manas is described thus: Our human body possesses a network of Nāḍīs. One of these Nāḍīs is called *Middhā*. It is the last layer of the sense of touch (Tvagindriya), beyond this the subtle touch-sensation also disappears. There being no Tvak and Manas-samyoga, the necessary condition of knowledge, possibly, no knowledge of any kind is experienced then.

In Suṣupti also Tamas predominates.

In this state of Suṣupti also the predominating element is Tamas.[1] Although no one obviously accepts that there is any knowledge in this state, yet there exists very slight impressions of the Vṛtti of Nescience through which the Jīvātman experiences the feeling of pleasure which is verified by the experience of the waking state in the form—'I had a very pleasant sleep.'[2]

But due to the slight impression of the Vṛtti of Nescience there appears to be the feeling of pleasure in this state.

The fact is that the Jīvātman is relieved of the thought (bhāvanā) of the entire Universe and enjoys, if we can call it, a complete rest in the Suṣupti;[3] because at that time all the thoughts or experiences of the waking life, which the Jīvātman had, are exhausted by the experiences of the dreaming state and now the Jīvātman remains alone (*Nirāsanga*) (without any accompaniment) and there it realises its own nature[4] (*Svarūpa*).

Jīvātman realises its own *Svarūpa* here.

Now a question is raised: Is there no Bhoga left for the Jīvātman to be experienced in the state of Suṣupti? The answer is—Yes, there is. The Bhoga is that of

Even in this state the Jīvātman has the Bhoga of happiness only.

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[1] Madhvasiddhāntasārasangraha, p. 113a.
[2] *Ibid*, pp. 113a—113b; Subodhinī on Sadānanda's Vedāntasāra, p. 48. Cal. Ed.
[3] SureçvaraVārttika, Verses 974—976.
[4] SureçvaraVārttika, Verse 977.

happiness only. The Çruti also supports it.[1] We may put it in another way. At this state, the Jīvātman is identified by Īçvara (of the Vedāntins) who is supposed to be the *causal-body*—Kāraṇa-Çarīra—of the entire Universe, hence the experience of happiness belonging to Īçvara is transferred to the Jīvātman.[2]

This happiness is transferred to Jīva from Içvara.

Now another question is raised: if there be only happiness in Suṣupti what is then the difference between this state and the state of final Realisation (Mokṣa)? An obvious and easy answer that can be given is that in Suṣupti Nescience or its impression is still present while it is not so in the Mokṣa.

Suṣupti where there is only happiness is differentiated from Mukti on account of its having the Nescience or its impression.

Thus the Jīvātman also gets some Bhoga in the Suṣupti stage.

This brief treatment of this section shows that there is a difference between Suṣupti and Svapna, but there is something common too. Both these have got their importance in the life of conscious beings and beings as such can never get rid of these.

This shows that Suṣupti although different from Svapna has something in common with it.

[1] 'आनन्दभुक् प्राज्ञः' Māṇḍūkya, Mantra 5.

[2] SureçvaraVārttika and Ānandagiri on Verse 1051.

SOME WORDS OF THE RGVEDA

BY

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"एकः शब्दः सम्यग्ज्ञातः सम्यक्प्रयुक्तः
स्वर्गे लोके कामधुग्भवति ।"

'अस्रिधः' R. V. I. 3. 9a.[1]

This is an epithet very commonly applied to the deities in Ṛgveda. Its meaning seems to be very ambiguous. Sāyaṇa derives it from √स्रिध्, which is neither found in Pāṇini's Dhātupāṭha nor is given in Nirukta or Nighaṇṭu. We cannot positively say on what authority Sāyaṇa has contrived to fashion out the meaning he gives. His meaning, though derived from the sense similar in all places, yet has to be varied to suit the context, which fact shows that he must have conjectured it. There is a similar root 'स्रिवु' which is found in Dhātupāṭha in the sense of 'गतिशोषणयोः' and there is every possibility of Sāyaṇa's having identified it with this √स्रिध्. The verbal (कृत्) form of this root ending in 'क्विप्' as स्रिधः (plural) also occurs. Sāyaṇa gives it sometimes the meaning of क्षय, or शुष्क, शत्रून्, दुःख, हिंसा, etc., which are all conjectural and meant for the purpose of suiting the context. In spite of all his efforts, we shall see

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[1] विश्वे देवासो अस्रिध एहिमायासो अद्रुहः ।
मेधं जुषन्त वह्नयः । I. 3. 9.

that Sāyaṇa's interpretation of this word does not appeal to us in all the places.

Native scholars widely differ in assigning meanings to this word. This word as well as other similar forms from its root are met with in Vājasaneyi Saṃhitā, where Uvvaṭa and Mahīdhara have given a meaning totally differing from that of Sāyaṇa. In V. S. 27. 6, 'अतिस्त्रिधो अतिस्त्रिधोऽत्याचित्तिमत्यरातिमग्ने' Uvvaṭa says 'स्त्रेधतिः कुत्सितकर्मा' and adds that 'अतिस्त्रिधः' here means 'अतिक्रम्य च कुत्सिताचरणान्.' Mahīdhara generally, except in rare cases, follows him. The words 'अस्त्रिधं' and 'अस्त्रेधता' also are found in V. S. XXV. 16 and XVIII. 75, which are the same as Ṛgveda I. 89. 3 and III. 14. 5, respectively. In the former Uvvaṭa explains the word 'अस्त्रिधं' as 'अच्युतसद्भावम्' ; Mahīdhara, 'न स्त्रेधते च्योतते सोऽस्त्रित् तमच्युतसद्भावम्'. We should note here that Mahīdhara takes the root to be Ātmanepadi, which is contrary to the forms which are all found Parasmaipadi in Ṛgveda. In V. S. XVIII. 75, Uvvaṭa explains अस्त्रेधता as 'अनन्यगतेन देवताया याथात्म्यचिन्तनैकरसेन'. Here Mahīdhara derives it as 'स्त्रिध् गतौ स्त्रेधति अन्यत्र गच्छति स्त्रेधत्। न स्त्रेधत् अस्त्रेधत् तेन अनन्यगतेनेत्यर्थः'. These are all conjectures having no authority of any kind.

Let us note also that in 'सिद्धहेमशब्दानुशासन' the roots √सृभु, सृम्भ् and √स्त्रिभु स्त्रिंभ् are found in the sense of 'हिंसायाम्' and 'सृधूङ् शब्दकुत्सायाम्'.

Uvvaṭa's rendering 'स्त्रेधतिः कुत्सितकर्मा' is in the fashion in which the roots in Nirukta are always explained ; but this wording of the root is not found in the existing Nighaṇṭu verb-lists. Whether it points to some other traditional book on Nirukta, we are not in a position to decide. This meaning of 'कुत्सितकर्मा' almost hits the mark. We shall make this clearer while we are trying to sift the various meanings of the root in order to come to some definite conclusion.

Atharvaveda, II. 6. 5, is the same stanza as Vājasaneyi Saṃhitā, 27. 6, quoted above ; but the reading there is

'अतिसृधः' instead of 'अतिस्रिधः'. Sāyaṇa in his commentary on that Veda takes the root to be 'स्रिध्,' and interprets it as 'शोषणकर्मा' with the remark 'छान्दसो धातुः क्विप्'. This is a kind of indirect confession of his being unable to find out the correct root with its meaning given anywhere. This fact, besides, goes to support our statement that the various meanings assigned to this root by him are merely of his own conjecture.

Roth in his S.P.D.[1] seems to identify this root with Pāṇini's as well as Hema Chandra's 'सृधु', 'सृम्भु' हिंसार्थे, with a view, perhaps, to support Sāyaṇa. Monier-Williams in his lexicon takes it to mean 'to err, to fail,' etc.; Macdonell in his Vedic Grammar for Students gives to this root a meaning of 'to blunder.' All these meanings are well-nigh similar to one another, but none of them carries the exact sense applicable to all cases.

Having all these meanings in view let us test all the cases that are met with in Ṛgveda and see whether we can be satisfied with any of them, or we can find out some other meaning more appropriate than all these.

The root √'स्रिध्' as its various forms occurring in Ṛgveda tell us, belongs to the first conjugation, which fact is corroborated by Uvvaṭa's exposition of 'स्रेधतिः कुत्सितकर्मा'. Its forms are found to be both assertive and negative, which are regularly conjugated and declined. The whole Ṛgveda consists of the following forms of this root :—

CONJUGATIONAL

Assertive

1. स्रेधति Rv. V. 54.7
2. स्रेधत ,, VII.32.9
3. स्रिधत् ,, VII.34.17
4. अस्रेधन् ,, IX.98.9

[1] St. Petersburg Dictionary.

DECLENSIONAL

Assertive	Negative
5. स्निधः (acc. plu.) 15 times	9. अस्निधः (nom. plu.) 5 times
6. स्निधः (acc. sing.) 2 times	10. अस्निधं (acc. sing.) 2 times
7. स्निधं (acc. sing.) VIII.18.10	11. अस्निधा (nom. dual) 2 times
	12. अस्निधानैः (शानच्) VII. 69.7
8. क्षेधन्तं (pr. part.) VII.32.21	13. अक्षेधता (pr. pa. inst. sing.) III.145.
	14. अक्षेधद्भिः (inst. plu.) VIII. 608
	15. अक्षेधन्तः (nom. plu.) 2 times
	16. अक्षेधन्ती (fem. nom. sing.) 2 times

We can see from the table given above that this root √ स्निध् has very regular conjugational and declensional forms and it, like many roots, gives forth a noun form by the addition of the verbal termination 'क्विप्'. This is a root which must have been used very commonly in Vedic times and even Yāska has ignored its explanation while dealing with the stanza Rv. VII. 34. 17 in his Nirukta at X. 44 ; the reason is obvious : it must have been so well-known to all that it was not in Yāska's view worth elucidation. But how it escaped admission into Pāṇini's Dhātupāṭha cannot be properly guessed. We are also at a loss to find out whether Sāyaṇa had any authority of his preceding commentators for the meaning of the forms of this root, or it is, as we have said before, his own conjecture. If we observe minutely all the forms occurring in Ṛgveda, its definite meaning is sure to strike us. So it is rather strange that scholars do not seem to have paid proper attention to this case.

Let us first take Sāyaṇa and try to see the validity of his meanings. From the table given above we can see that

there are sixteen different forms of this root. It has been already remarked that Sāyaṇa's meaning for all these forms varies slightly in various places. He had to assume five different meanings. He assumes

1. '**शोषणार्थ**' in six places, *viz.*—

   I. 36. 7, 48. 8, and IX. 71. 8 for assertive forms (**स्निधः**), etc.

   I. 13. 9, 89. 3, V. 80. 3, for negative forms (**अस्निधः**), etc.

2. '**क्षयार्थ**' in eleven places, *viz.*—

   III. 14. 5, 29. 9, 58. 7; V. 80. 3;
   VII. 69. 7; IX. 86. 18 (negative).
   III. 9.4, 10.9; V.54.7; VII. 34. 17 (assertive).

3. Of '**दुःख**' once in I. 129. 11 (**स्निधः** able).

4. Of '**शत्रु**' nine times, *viz.*—

   I. 36. 7, 48. 8; VIII. 18. 8, 18. 10, 79. 9, 94. 7; IX. 27. 1, 71. 8 (assertive).
   IV. 45. 4 (negative).

5. '**हिंसार्थ**' ten times, *viz.*—

   VII. 32. 21; VII. 79. 9; IX. 66. 22; 71. 8 (assertive).
   I. 13. 9; IV. 32. 24; V. 46. 4;
   VII. 59. 6; VIII. 27. 18; 60. 8 (negative).

Before we proceed to examine all the passages in detail to see whether the meaning assigned to this root √ '**स्निध्**' by various commentators suits the context or not, I should request the scholars to have my meaning also before them, so that it may facilitate the comparison that is being made.

While examining the various passages I am going to give my reasons also why I accept the following meaning for √ **स्निध्**. The meaning which I came to decide upon was '*to sin*' from the inference that the forms '**अस्निधः**' '**अरेपसः**' and sometimes even '**अनागसः**' and '**अनघाः**' *must* have been used

exactly in the same sense. So I take √ क्षिध् as 'to sin,' an independent root in Vedas for this verb.

Let us now take the passages one by one. To begin with the assertive conjugational forms, as given in the table, we have first

1. क्षेधति (pr. tense III per. sing.). Rv. V. 54. 7 : न स जीयते मरुतो न हन्यते न क्षेधति न व्यथते न रिष्यति ।

Sāyaṇa says 'न क्षेधति न क्षीयते'.

'Never doth he decay,' says Griffith.

Here Monier-Williams' meaning 'to err' or 'to fail' and Macdonell's 'to blunder' and mine 'to sin' all are equally applicable.

2. 'क्षेधत (Imp. II per. plural). VII. 32. 9 : मा क्षेधत सोमिनो दक्षता महे कृणुध्वं राय आतुजे ।

Sāyaṇa says 'मा क्षेधत । मा हिंसिष्ट ।'

'Grudge not ye Soma-pourers, stir you, etc.'—(Griffith). Here 'to blunder' or 'to fail or err' is more plausible. But in my opinion 'do not sin' is the best. The word 'दक्ष' stands exactly in opposition to 'रपस्' or 'क्षिध्.' We know 'दक्ष्' means to prosper and that too by righteousness. So 'क्षिध्' means 'to sin' and through it 'to decay.' The meaning would be 'do not sin, be meritorious,' *i.e.*, 'do not be discouraged but be spirited,' etc.

3. 'क्षिधत्' (aorist III per. sing.). VII. 34. 17 : मा नोऽहिर्बुध्न्यो रिषे धान्मा यज्ञो अस्य क्षिधदायोः' ।

Sāyaṇa—ऋतायोर्यज्ञकामस्य यजमानस्य यज्ञो मा च क्षिधत् । न क्षीयेत ।
and he takes 'रिषे धात्' as 'हिंसकाय मा ददातु'.

In this and in the previous passage it should be noted that this root 'क्षिध्' and the root 'रिष्' are simultaneously used. Sāyaṇa's rendering as shown here is not happy.

'Ne'er may the Dragon of the deep harm us; ne'er fail this faithful servant's sacrifice'—(Griffith).

Here Griffith follows Sāyaṇa and Monier-Williams. The idea involved herein is that 'Ahirbudhnya' is desirous of sacrificial oblations (ऋतायुः); so let the sacrifice be sinless,

so that he may not have any cause to injure us, *i.e.*, if the sacrifice related to him becomes faulty he is sure to harm us; here Macdonell's 'blundering' is also plausible; but ours being applicable to all cases is preferable.

4. **अस्रेधन्** (Imperf. III. per. plur.). IX. 98. 9; '**स वां यज्ञेषु मानवी इन्दुर्जनिष्ट रोदसी। देवो देवी गिरिष्ठा अस्रेधन्तं तुविष्वणि॥**

Sāyaṇa:—**हे मानवी मानव्यौ मनोः स्वभूते हे देवी द्योतमाने हे रोदसी द्यावापृथिव्यौ वां युवयोः यज्ञेषु स इन्दुः सोमो जनिष्ट अजनि। अन्तरिक्षे देवः स्वतेजसा सर्वं प्रकाशयन् पृथिव्यां गिरिष्ठा ग्रावसु तिष्ठन्। तं जातं सोमं तुविष्वणि बहुस्वने उपरे यज्ञे वाऽस्रेधन्। ऋत्विजो ग्रावभिरध्नन्। अभ्यषुण्वन्निति यावत्।**

Griffith:—I now at holy rites produced you, Heaven and Earth, the friends of men, Hill-haunting god and goddess. They bruised him where the roar was loud.

Here the meaning of both is not clear. No doubt it is one of the obscure passages. Yet with the help of Sāyaṇa and context let us try to elucidate it as far as possible.

Here 'Heaven and Earth' (**रोदसी**) are addressed. '**मानवी**' also is their epithet. When the sacrifice was held for their sake, Soma was born (was extracted). '**देवः**' is an epithet of '**द्यावा**' or **द्यौः** and so also '**देवी**' of **पृथिवी**. Let us take **गिरिष्ठा** as dual qualifying both. They can be taken as subject of **अस्रेधन्** though it is plural. Both sinned (extracted) Soma causing him to make great noise. Here the sense of '**हिंसा**' is prominent in 'sinning.' By the meaning 'to sin' we do not desire to attach to it some passive sense, but to commit some purposeful faulty act. Again, the sense here is the same as Sāyaṇa has taken it to be, but '**देवो देवी**' should be the subject of '**अस्रेधन्**' instead of '**ऋत्विजः**', because '**हिंसा**' of Soma is made for their purpose, though the action of extraction is done by ('**ऋत्विजः**') priests.

Now we come to the declensional forms:—

5. **स्रिधः** (acc. plur. of verbal noun **स्रिध्**).—This form should be distinguished from its similar form **स्रिधः** which cannot,

as its accent indicates, be accusative. This change of accent can be accounted for according to grammatical regulations. The termination 'शस्' of acc. plural is 'अनुदात्त' acc. to Sūtra 'अनुदात्तौ सुप्पितौ' but this rule is not applicable to terminations (सुप्) beginning from the instrumental singular as the Sūtra will tell us 'सावेकाचस्तृतीयादिर्विभक्तिः'. So when the root is accented instead of termination in case of mono-syllabic bases, the termination according to rule must be some one from instrumental singular to locative. Here the possible termination is ablative or genitive, when it is written as स्रिधः and not स्रिधः

Let us quote passages for the acc. plural form 'स्रिधः' :—

I. 36. 7; होत्राभिरग्निं मनुषः समिन्धते तितिर्वांसो अति स्रिधः.

Sāyaṇa:—स्रिधः शत्रूनतितितिर्वांसो अतिशयेन तरन्तः ।

Griffith—Men kindle Agni, with their sacrificial gifts (victorious over the enemies).

Scholars only can decide whether the sense of 'enemy' or 'sin' is preferable here. Sin is more deadly than enemy. It is the enemy of mind and soul whereas the external enemy does evil to body alone.

I. 48. 8. 'अप द्वेषो मघोनी दुहिता दिव उषा उच्छदपस्रिधः ।

Sāyaṇa—उषा द्वेषो द्वेष्टृनपोच्छत् । अपवर्जयति । तथा स्रिधः शोषयितॄन् अपवर्जयति ।

Here 'शोषयितॄन्' is more generic. Sin can be one of them and it is more specific. We have already drawn attention of scholars to the fact that the roots 'रिष्' and 'स्रिध्' were used together; similarly here 'द्वेषो' and 'स्रिधः' are both used with the preposition 'अप' separately, perhaps with the intention, as we pointed out, to distinguish the external enemy, 'a foe,' from the internal one, such as 'sins.' So our meaning seems far more plausible. Griffith translates 'Uṣas shines foes and enmities away,' which rendering of course is not very praiseworthy. The sense of 'blundering' or 'failing' does not at all suit here.

III. 9. 4: ईयिवांसमति स्रिधः, etc., is just like the passage I. 36. 7.

III. 10. 7: अग्ने यजिष्ठो अध्वरे देवान् देवयते यज। होता मन्द्रो विराजस्यति स्रिधः।

Sāyaṇa says 'त्वं स्रिधः क्षपयितृञ्छत्रूनतिक्रम्य विराजसि'

'Thy splendour drives our foes afar'—(Griffith).

In my opinion the sense here is subjective and not objective. 'विराजस्यति स्रिधः' would mean '(O Agni) you shine beyond all sins,' *i.e.*, in you no trace of sin is to be found.

VII. 81. 6 has 'उषा उच्छदप स्रिधः' which is just similar to I. 48. 8.

VIII. 18. 7—9: These passages, I think, will further go to confirm my meaning.

VIII. 18. 7: उत स्या नो दिवा मतिरदितिरूत्या गमत्। सा शंताति मयस्करदप स्रिधः॥

Sāyaṇa—'स्रिधो बन्धकाञ्शत्रूनपगमयतु। स्रिधिर्बाधनार्थः।

Here 'मयः' welfare stands in opposition to 'स्रिधः'. Sāyaṇa again supposes a new meaning of 'बाधन' for 'स्रिधः'. It is plain context that Aditi should do us welfare by removing all evils in the form of sins.

Griffith takes the last clause as 'may Aditi come nigh to help with loving kindness, bring us weal and chase our foes.'

VIII. 18. 8.: उत त्या दैव्या भिषजा शं नः करतो अश्विना। युयुयातामितो रपो अप स्रिधः॥

Sāyaṇa—स्रिधः शत्रूनपगमय त्वम्।

The Vedic poet means to say that the Aśvins should remove sin in him; because Aśvins themselves are beyond sins (अपस्रिधः). Here 'अपस्रिधः' is equal in meaning to 'अतिस्रिधः' which can very well be adjectives for a deity. In brief, 'अप स्रिधः' or 'अति स्रिधः' when adjectives can very well be taken as 'अस्रिधः'. The word 'इतः' is very characteristic here. It

refers to 'sin' in the reciter, as distinguished from that of the deities.

VII. 18. 9 : शमग्निरग्निभिः करच्छं नस्तपतु सूर्यः। शं वातो वात्वरपा अप स्त्रिधः ॥ Sāy. स्त्रिधः शत्रूंश्चैतेऽग्न्यादयोऽपगमयन्तु ।

Griffith as usual takes ' chase our foes.'

One can see how unconnected this sentence ' chase our foes' stands in the middle of all these wishes. Here 'अप स्त्रिधः' should be connected with वातु. In that case it will become 'स्त्रिधः अपवातु' which will mean '(may the sinless wind) (अरपा वातः) blow away all sins (स्त्रिधो अपवातु).'

VIII. 18. 10 will make this sense clearer.

'अपामीवामप स्त्रिधमपसेधत दुर्मतिम् ।
आदित्यासो युयोतना नो अंहसः ॥'

Sāyaṇa takes ' स्त्रिधम्' as 'अपरोधकं शत्रुम्'. The adjoining words' अमीवा' and 'दुर्मति' will suggest that the word 'स्त्रिधम्' must also have some similar sense which is already inferred by us. Griffith here realises this difficulty and uses the word ' strife ' for 'स्त्रिधः' which is unusual. ' Drive ye disease and *strife* away ; drive ye away malignity ; Ādityas, keep us ever far from sore distress '—(Griffith).

VIII. 79. 9 : अव यत्स्वे सदस्थे देवानां दुर्मतीरीळे ।
राजन्नप द्विषःसेध मीढ्वो अप स्त्रिधःसेध ॥

Sāyaṇa—स्त्रिधो हिंसकानपसेध । भिन्धीत्यर्थः ।

I think that there is no harm in taking as usual ' अपसेध ' to mean ' अपगमय ' which will mean ' repel ' or ' drive away.' ' द्विषः ' would mean external enemies and ' स्त्रिधः ' internal as before. Internal enemies would include anger, malice, hatred, etc., which cause sin.

VIII. 94. 7 : कदत्विषन्त सूरयस्तिर आप इव स्त्रिधः । अर्षन्ति पूतदक्षसः ॥

Sāyaṇa here takes ' स्त्रिधः ' as an adjective of Maruts, and explains it as स्त्रिधः शत्रूणां शोषकाः हन्तारस्त इमे मरुतः. The adjective generally applied to deities is ' अस्त्रिधः ' etc.; it is a kind of self-contradiction to use quite contrary word which will

never yield the desirable sense. There is not a single instance in the whole of Ṛgveda including this example that the word 'स्रिधः' is used as an epithet of any deity. 'अस्रिधः' is very common (compare IV. 45. 4; V. 46. 4; VIII. 50. 8, etc.). The form 'स्रिधः' acc. plur. is invariably preceded either by 'अप' or 'अति' and here in my opinion it is preceded by 'तिरः' which has the same sense as 'अप' or 'अति.' Sāyaṇa's construction has been very peculiar. He takes 'तिरः' to imply classical meaning, as Amara gives ('तिरोऽन्तर्धौ तिर्यगर्थे'), 'तिर्यगर्थे' here, and connects it with 'आपः'. My meaning bears support of Yāska himself who says (तिरः सत इति प्राप्तस्य। तिरस्तीर्णं भवति) (Nir. III. 20). This meaning of तिरः as 'beyond' or 'across' in Vedas is further corroborated by lexicons (Monier-Williams under तिरः). The wise Maruts are compared to 'आपः' both of whom are shining; both are 'पूतदक्षसः' (of holy strength). The shining of 'आपः' beyond sins we see in so many passages as in 'इदमापः प्रवहत यत्किञ्च दुरितं मयि' or X. 9. So the plain meaning of the Ṛk. would be 'when will the wise Maruts shine (कदा त्विषन्त सूरयः) like waters (आप इव) beyond (all) sins (तिरः स्रिधः): when will they of holy strength (पूतदक्षसः) come?' The simile of 'आपः' will again remind us that 'स्रिधः' must mean 'दुरित' or 'रपः', all being synonyms of sin.

IX. 27. 1: एष कविरभिष्टुतः पवित्रे अधि तोशते।
पुनानोऽग्नक्षप् स्रिधः॥

Sāyaṇa — स्रिधः शत्रूनपघ्नन् अपगमयन्।

There is no harm if we take 'पापानि अपगमयन्' instead of 'शत्रूनपगमयन्'; nay it is more plausible; because 'Soma' is being praised while he is being sifted and purified. That he will remove sins in one's self is more natural than the removal of enemies. Griffith says: "This sage, exalted by our lauds, flows to the purifying cloth, scattering '*foes*' as he is cleansed." It must be 'sins' and not 'foes.'

IX. 63. 28 : पुनानः सोम धारयेन्दो विश्वा अप स्रिधः ।
जहि रक्षांसि सुक्रतो ॥

Here 'स्रिधः' should be identified with 'रक्षांसि' or comparison is intended, *i.e.*, 'स्रिधः एव रक्षांसि or स्रिध : रक्षांसीव अपजहि मारय' । Here sins are compared to evil spirits. Or it may be connected with 'पुनानः' as in the next verse. Soma is 'अस्रिधः'.

IX. 66. 22 : पवमानो अति स्रिधो अभ्यर्षति सुष्टुतम् । सूरो न विश्वदर्शतः ॥
Sāyaṇa—स्रिधः हिंसकान् शत्रूनतिक्रम्य गच्छति ।

Here the poet's idea is worth noting. Soma is called 'पवमान' because he purifies. There must be some impure object which can be purified. If we take 'पवमान' as a participle, its object will be अतिस्रिधः which will mean purifying beyond all sins he comes to sweet praise (सुष्टुति). This 'सुष्टुति' must begin where there is no sin. The sense of enemy is here really redundant. The simile is of the sun.

X. 25. 7 has got 'सेधं राजन्नपस्रिधः' which has been already explained under VIII. 79. 9.

X. 126. 5: आदित्यासो अति स्रिधो वरुणो मित्रो अर्यमा ।
उग्रं मरुद्भीं रुद्रं दुवेमेन्द्रमग्निं स्वस्तयेऽति द्विषः ॥

Sāyaṇa—स्रिधो हिंसकान् शत्रूनति नयन्तु ।

He has to understand or insert the verb नयन्तु with the preposition अति which is already there. My opinion is that 'अतिस्रिधः' and 'अतिद्विषः' both should be taken as adjectives to all the deities. Then the construction becomes very simple. These adjectives will respectively be equal to 'अस्रिधः' or 'अद्विषः' or 'अद्रुहः' which are the epithets very commonly used elsewhere with deities. " So we call Ādityas, etc., who are sinless and void of enemies for our welfare (स्वस्तये)." Griffith translates 'Ādityas are beyond our foes' which is not a very happy idea.

6. We now come to the other form **स्रिधः** which is not accusative or nominative.

I. 129. 11 : **पाहि नं इन्द्र सुष्टुत स्रिधोऽव याता सदमिद्दुर्मतीनां देवः सन् दुर्मतीनाम् । हन्ता पापस्य रक्षसस्त्राता विप्रस्य मावतः ॥**

Sāyaṇa—**'हे इन्द्र सुष्टुत शोभनस्तुत त्वं स्रिधो दुःखात्तदुत्पादकात्पापाद्वा नोऽस्मान्पाहि रक्ष'** ।

This is the only place where Sāyaṇa indirectly admits that **'स्रिध्'** means 'sin. **'हन्ता पापस्य रक्षसः'** will mean **'पापमेव रक्षः'** or **'पापकारि रक्षः'** or both. This statement goes to support my view. **'स्रिधः'** is here ablative.

IX. 71. 8 : **त्वेषं रूपं कृणुते वर्णो अस्य स यत्राशयत्समृता सेधति स्रिधः । अप्सा याति स्वधया दैव्यं जनं स सुष्टुती नसते सं गोअग्रया ॥**

Sāyaṇa—**तत्रयुद्धं सरश्मिः (सोमस्य) स्रिधः शोषकान् शत्रून् सेधति निषेधति** ।

Although the meaning of this stanza is not quite clear to me, as the whole hymn seems to be obscure, yet this much can be said here, that **'स्रिधः'** should be taken as ablative and not as accusative as Sāyaṇa does; because it is against the rule of accent. The meaning of **'स यत्राशयत् समृता सेधति स्रिधः'** would be "the battle in which Soma is present **(यत्र समृता सः अशयत्)** becomes sinless (or more literally 'it passes away from sin')." This seems to me to be the sense implied herein. **(यत्र यस्मिन् समृता युद्धे स सोम अशयत् तिष्ठति तद्युद्धं स्रिधः पापात् सेधति निर्गच्छति—सिधू गत्यां**—Pāṇini).

7. **स्रिधं** VIII. 18. 10 has been already dealt with.

8. **स्रेधन्तं** VII. 32. 21 :

न दुष्टुती मर्त्यो विन्दते वसु न स्रेधन्तं रयिर्नशत् ।

Sāyaṇa says **'स्रेधन्तं हिंसन्तं'** and being unsatisfied with this meaning he further says **'इन्द्रविषयस्तुत्यादिकर्माण्यकुर्वन्तमित्यर्थः'**. Macdonell's meaning of 'blunder' very well suits here. 'To sin' is as usual appropriate.

9. 'अक्षिधः'

I. 3. 9 : विश्वे देवासो अक्षिध एहिमायासो अद्रुहः । etc.

Sāyaṇa— 'अक्षिधः क्षयरहिता शोषणरहिता वा'

I shall compare here X. 63. 4 and IX. 101. 10, etc.

X. 63. 4 goes like this 'नृचक्षसो अनिमिषन्तो अर्हणा बृहद्देवास अमृतत्वमानशुः । ज्योतीरथा अहिमाया अनागसो दिवो वर्ष्माणं वसते स्वस्तये ॥ Here 'अनागसः' is an epithet of Viśvedevas. For अरपसः I have given reference above. All these three carry the same sense. As regards 'अनागसः' it is found to have been applied to deities as well as to human beings, of course, in both cases differing in sense. The word 'आगस्' has the same sense in Vedas as we have now in classical Sanskrit. Amara gives its two meanings as 'पापापराधयोरागः', *i.e.*, the word 'आगस्' means (1) sin, (2) crime or fault. The word 'अनागस्' having the first meaning, *i.e.*, in the sense of 'sinless,' is applicable to deities alone as human beings cannot totally be 'sinless.' 'अनागसः' with the second meaning 'innocent' or 'crimeless' is applied to the poets or human beings. It is equal in sense to 'अरपसः' and 'अक्षिधः' when it is applied to deities.

In I. 13. 9, three goddesses 'इळा सरस्वती मही' are called 'अक्षिधः'. Sāyaṇa here takes 'अक्षिधः' as 'शोषेण क्षयेण वा रहिता' as before.

In IV. 45. 4, Aśvins' steeds are called 'अक्षिधः'. Sāyaṇa gives it the meaning 'अद्रोग्धारः' which is nearly the same as 'innocent' or 'sinless.'

In V. 46. 4, the god wind (वातः) is called 'अक्षिधः'. As it is used in plural it can very well be taken as an epithet of other gods too.

On VIII. 50. 8, there is no commentary by Sāyaṇa, as it is one of the '*khila*' hymns.

10. 'अक्षिधम्' (acc. sing.).

In I. 89. 3, 'अक्षिधम्' is an epithet of 'दृषम्.' Sāyaṇa's rendering on it is 'शोषणरहितं सर्वदैकरूपेण वर्तमानम्'.

In IX. 86. 18. 'इष' (food) is called 'अक्षिध.' Sāyaṇa here takes it as an adverb qualifying 'पवस्व' meaning

'अक्षीणम्.' There is already a word 'पिप्युषी.' So अक्षीणां would be redundant. It should be taken with 'इष' meaning 'pure or holy food.'

11. 'अस्रिधा' as a dual is used in Ṛv. III. 58. 7 for Aśvins. Sāyaṇa here says 'अस्रिधाऽनुपक्षीणौ.' Its antiword 'सुदक्षा' is also used here.

In IV. 32. 24, Indra's two horses are described as 'अस्रिधा' There Sāyaṇa will say 'अहिंसकौ.'

Then we come to participial forms of the root. The first of their row is 'अस्रिधानैः'

12. 'अस्रिधानैः' (Pr. partc. instrum. plur.).

This form shows that the root can be used in Ātmanepadi and other than the First Conjugation. In VII. 69. 7 it is an epithet of Aśvins, horses; Sāyaṇa says 'अक्षीयमाणैः'. The form 'अस्रिधा' used to qualify Indra's horses in the previous passage has the same sense as here.

13. 'अस्रेधता' (Pr. parti. inst. sing.).

III. 14. 5: वयं ते अद्य ररिमा हि काममुत्तानहस्ता नमसोपसद्य ।
यजिष्ठेन मनसा यक्षि देवानस्रेधता मन्मना विप्रो अग्ने ॥

Sāyaṇa—'अस्रेधता मन्मना अक्षीणेन प्रभूतेन मन्मना मन्त्रेण' ।
We shall say 'अपापेन' 'by innocent (sinless) song.'

14. 'अस्रेधद्भिः (Inst. plur. of pr. parti.).

VIII. 60. 8: मा नो मर्ताय रिपवे रक्षस्विने मा यज्ञाय रीरधः ।
अस्रेधद्भिस्तरणिभिर्यविष्ठ्य शिवेभिः पाहि पायुभिः ॥

Here 'अस्रेधद्भिः' is an adjective of 'पायुभिः' (protection). Sāyaṇa says 'अहिंसकै रक्षणैः'. How can 'रक्षण' be 'अहिंसक'? If it is (हिंसक), injuring, it is no more protection. So other meanings of Macdonell and Monier-Williams are plausible here. 'Sinless protections' can very well do.

15. स्रेधन्तः (Nom. plur. of pr. parti.).

III. 29. 9. कृणोत धूमं वृषणं सखायोऽस्रेधन्त इतन वाजमच्छ ।
अयमग्निः पृतनाषाट् सुवीरो येन देवासो असहन्त दस्यून्॥

Here the sacrificial host **यजमान** speaks to the priests. Sāyaṇa says **अक्षीणा अनुपरतसामर्थ्याः सन्तो यूयं वाजं मन्थनक्षमं युद्धं अच्छा-गन्याभिमुख्येनेतन प्राप्नुत)**. " Raise ye a mighty smoke, my fellow-workers! ye shall attain to strength without obstruction. This Agni is the battle-winning hero by whom the gods have overcome the Dasyus'—(Griffith). He takes **'अक्षेधन्त'** as 'without obstruction' and **वाज** as 'strength.' **'अक्षेधन्त इतन वाजमच्छ,'** I think, would mean 'sinless (ye) march forward towards the battle.'

VII. 59. 6 : **आ चं नो बर्हिः सदंताविता चं नः स्पार्हाणि दातवे वसु ।**
आचं क्षेधन्तो मरुतः सोम्ये मधौ स्वाहेह मादयाध्वै ॥

Here **'अक्षेधन्तः'** qualifies **'मरुतः'**. It is just equal to **'अक्षिधः'**, *i.e.*, sinless. Sāyaṇa says **'अहिंसन्तः'**. Griffith takes it as 'Ye maruts, friends of all,' which is conjectural.

16. **'अक्षेधन्ती'** (Fem. nom. sing. of pr. parti.).

V. 80. 3 : **एषा गोभिररुणेभिर्युजाना क्षेधन्ती रयिमप्रायु चक्रे ।**
पथो रदंन्ती सुवितायं देवी पुरुष्टुता विश्ववारा विभाति ॥

This is a description of 'Uṣas' (the dawn). Sāyaṇa takes **'अक्षेधन्ती'** as **अशुष्यन्त्यक्षीणा वा** . Griffith takes as ' injuring none,' same as **'पापमकुर्वती'**.

VIII. 27. 18 : **अग्ने चिदस्मै कृणुधान्यञ्चनं दर्गे चिदा सुसरणम् ।**
एषा चिदस्मादशनिः परो नु साक्षेधन्ती विनश्यतु ॥

Here **'अक्षेधन्ती'** is used for **अशनिः** (lightning); so obviously some sense of injury is involved. **'पापमकुर्वती'** will very well serve the purpose. Sāyaṇa says **'काश्चिदभ्यहिंसती.'** This meaning **(हिंसा)** of Sāyaṇa well-nigh suits many passages ; but in others it is quite useless. So I think that **'क्षिध्'** is not the proper meaning of **'क्षिध्.'** Even in classical Sanskrit we have not an independent root for ' to sin ' **(पापं कृ)**. The roots **'रप्'** and **'क्षिध्,'** especially the latter, must be one which must have been used for the faulty committance of sacrificial rites which is known as ' **यज्ञहिंसा.'** This independent root **'क्षिध्'**, it seems to me, has not been able to engage the attention of scholars as yet.

Om Śam.

SECTION IV

ARABIC-PERSIAN

THE *KUNYA*-NAMES IN ARABIC

BY

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The *Kunya*[1] (pl. kunā) variously rendered as surname, nickname and epithet, is regarded by Al-Mubarrad[2] as derived from the *kināya*[t] (metonymy).[3] According to him it was used with a boy's name as a sort of a lucky augury, wishing him to have a son (على جهة التفاءل بان يكون له ولد), and a person was named after his son either metonymically for his own name (كنابة عن اسمه) or as a means to keep up his name (صيانة لاسمه).[4] But the grammarians generally count it with اسم (Name) and لقب (Title—such as زين العابدين for 'Aliyy, the son of Ḥusayn b. Abī Ṭālib) as one of the forms of the Proper Noun علم, and that it is always used in the Possessive Case, being invariably formed by the prefixing of 'Abū, 'Umm, 'Ibn, Bint.[5] The use of the *kunya* seems to have originated in the habitual rallying-cry (شعار) of the .

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[1] Properly kunyat[un]. Also pronounced as kinya[t] (from ك ن ي) and rarely as kunwa[t] and kinwa[t] (as from ك ن و)—hence the Preterite forms كَنَيْتُ and كَنَوْتُ, as also آكْنَيْتُ (which, however, is not recognised by Al-Kisā'ī) and كَنَّيْتُ, and كَنِيٌّ (after سَمِيٌّ) the *namesake, homonym.* (IM. on the authority of Al-Liḥyānī and Abu 'Ubayd).

[2] Mub., p. 413 : ومنه اشتقت الكنية.

[3] This is how R. designates it (u. ام ابو, etc.), but not so Sakkākī and Taftāzānī.

[4] Mub., p. 413.

[5] As also, though rarely, with اخو and أُخْت.

Arab warrior in the battlefield.[1] One can easily picture the indefatigable warrior advancing into the field and crying انا فلان و ابو فلان (I am so and so, the son of so and so!) and meeting with a retort of the same nature from the opposite party. For thus was the warrior able not only to terrify his opponents by mentioning to him names that spelled awe and terror, but also to " locate himself correctly . . . to persons belonging to the different communities, who could test his account of himself."[2] The *kunya* is thus bound up with genealogy (نسب), of which it was a practical exposition and a means of its verification. Generally speaking it was employed as a means of elevation and exaltation (تعظيما , توقيرا) of a person's name. Besides this, two other reasons are also offered for its use; first, to give publicity to anything by naming it metonymically, and secondly, it was regarded as a good substitute for the name, as 'Abū Lahab had become a regular name for 'Abdul-'Uzzā.[3] So much importance was given to it that not unfrequently people were known by their *kunyas* far better than by their names. The proverb الكُنَى منبهة و الاسامي منقصة[4] (The *kunyas* are warners and the names are reducers) well mirrors their belief in the gravity and importance of using the patronyms (and matronyms) as against the use of their real proper names. And the reason is not far to seek; for the whole thing hinges upon the Arabs' keen sense of honour and their enormous pride not only in their own personal achievements but also in the greatness and glory that they had inherited from their ancestors on the father's as well as mother's side. The Arabic (and particularly the pre-Islamic) poetry is full of long drawn out expressions of this pride. In fact

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[1] IM. u. كني.

[2] Margoliouth, Introduction (p. 1) to the Kitāb Al-'Ansāb of Al-Sam'ānī.

[3] IM. and Taj. u. كني.

[4] Mdn.

quite a libraryful of poetry has been collected and designated as the Fakhriyyāt (self-laudatory poems).

So much about the *kunya* as applied to human beings. But it does not stop here ; for just as the Arabs were so extremely careful about their pedigree and the oral (and later, written) preservation of their genealogy, so also were they zealous in watching and preserving the genealogies of their camels and horses from one generation of theirs to another, so that the nobility of a camel's or a horse's breed and its descendance from a renowned ancestor was also an established source of pride and gave a handle to the nobility and greatness of a person and his tribe, and an infringement or violation of the sanctity of the animal's breed and life often gave rise to long feuds among their owners, just as the slightest lampoon against, or any misappellation of, a person and his tribe was enough to involve the whole nation (if they were at all a nation in the real sense of the word) in interminable bloody wars. Like men, therefore, the camels and horses also had their *kunyas*, which were attached not only to their proper names but were given to the species absolutely. Passing on from this, the Arabs specified not only other animals—from the huge elephant and camel down to the smallest bug and mosquito—but also fixed such appellations for inanimate objects and abstract ideas, as will appear from the collection in the following pages.

It will readily appear that most of these appellations and epithets (for so the *kunyas* of animals and other objects should properly be styled) apply to commonplace animals and beasts, such as were mostly in evidence in the country, both at home and abroad. In some cases it will be found that these *kunyas* take the place of proper names as applied to creatures of a rare occurrence. It is, however, an interesting fact that almost every description of animal life finds a place among the long list, among the abstract ideas, calamity, misfortune, evil (which were by

no means a rare commodity in Arabia in those days) occupy far more space than such as truth, falsehood, etc.; and it is rather strange why the outstanding points of the Arabian Sense of Honour (*Muruwwa*) should not have been dubbed as the father, mother, son or daughter of something. In this respect they perhaps liked to be plain and outspoken rather than involved and intricate in expression.

The *kunyas* have (just as in the case of human surnames and patronyms) 'Abū, 'Umm, 'Ibn (with the dual 'Ibnā, and plurals Banū and 'Abnā), Bint (with its plural Banāt) and 'Akhū, prefixed to them. Besides these the prefixes Dhū (for masculine) and Dhāt (for feminine) have also been regarded as falling under the title *Kunya*. And it is in the same order that they have been arranged in the following pages.

As a general rule the *kunya* indicates the nature, quality and function of the object, or its similarity in its nature or function to the thing to which it is related. For instance أُمّ (mother) relates to such inanimate things as have growth[1] (as in ام الشجرة and ام النخلة), and signifies the source, origin, foundation or basis of a thing,[2] its stay or cause of subsistence.[3] Likewise anything to which other things are collected together or adjoined, is said to be their mother[4] (as in ام القوم and أم العيال), or the place of collection and combination or comprisal and comprehension of a thing is its mother (as in ام الخبز and ام النجوم). So also is the beginning, the main or chief part of a thing styled as the mother thereof. 'Ibn is usually applied to anything on which the obtainment of something depends, or anything on which the development, strength, maintenance and

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[1] Taj. u. ام.

[2] F. and MM.

[3] Taj. u. ام.

[4] M. on the authority of Al-'Akhfash.

perfection of something in based[1] (as in ابن حرب and ابن السبيل), or something to which one's endeavours are mostly devoted[2] (as in ابن بطن and ابن يوم). It should be noted, however, that if 'Ibn is used for such things as do not sustain a distinction of sex, the plural of *'Ibn* is formed in *Banāt*, as in ابن ثمرة and ابن اوبر, etc.[3] This treatment is also accorded to the *kunyas* of smaller animals, the sex of which is rather hard to recognise, as in the case of ابن عرس and ابن آوى. In fact all plurals other than those of human beings, the genii and the angels are formed in *Banāt*.[4] As to 'Akhū the general rule is that in cases where Akhū does not indicate a born brother, it signifies resemblance (مشاكلة) in some quality (form, value, etc.), and unity of function or action.[5] For instance, they say هذا الثوب اخو هذا ; so also is the epithet اخوان الشياطين for المبذرين (Kor., XVII, 27) and اخو الحمر for نبيذ الزبيب.[6] It is also used in the sense of اهل, *i.e.*, worthy of or fit for a thing, *e.g.*, اخو ثقة (one worthy of confidence) and in the sense of ذو, as in اخو الغنى = ذو الغنى (a wealthy person).

All lexicographers give *kunyas* under Abu, Umm, etc., as well as under the nouns to which these are attached as مضاف. But none of them can in any way be said to be exhaustive. Suyūṭī devotes a full chapter to *Kunya*-names in the Mizhar under the title:

(النوع السادس) معرفة الاباء والامهات والابناء والبنات والاخوة والاخوات والاخواء والذوات -

and quotes three authors on this subject, *viz.*, (i) Abul-

[1] Taj. on the authority of Al-Rāghib.
[2] Ibid.
[3] M. on the authority of Tha'lab; and others.
[4] Ibid.
[5] M. u. اخ; and p. 310.
[6] As used by Abul-'Aswad al-Du'ili,—M., p. 310.

'Abbās Muḥammad b. al-Ḥasan al-'Aḥwal, whom al-'Akhfash reckons as the first writer on the subject and whose work, we are told, dealt with only the first four of these *kunya*-prefixes; (ii) Ibn al-Sikkīt's المبنى والكنى والمواخي وما يضم اليه which included all except الاخوات and is often quoted by lexicographers; (iii) Ibn al-'Athīr's الموضع which was summarised by Suyūṭī himself under the title المُنَى في الكُنَى. Of these the last one was edited by Seybold in 1896 in the Semitistische Studien,[1] and is a pretty long work covering 256 pages of the text, and Suyūṭī's المُنَى was done by him in 1895 in the Z.D.M.G. (pp. 231—243). The Muraṣṣa' is by far the best work on the subject. But for the kind courtesy of Professor A. Ṣiddīqī of the Dacca University and the favour of the Vice-Chancellor of that University in having lent me the book, I would have had to depend on the references to it made by the different lexicographers. Though received just when I was going to the press it has helped me in making some valuable corrections and in supplying some more examples of *kunyas*, and has been the cause of giving me further consolation of realising that I have been able to add some more material not found even in the Muraṣṣa'.

I have arranged the *Kunya*-names in the order of 'Abū, 'Umm, 'Ibn (followed by 'Ibnā, Banū and 'Abnā), Bint, Banāt, 'Akhū, Dhū and Dhāt. Then follow the geographical names in the same order of *Kunyas*.

I have used the following abbreviations in the work :—

Burhan.	for	Burhān-i-Qāṭi' (Persian Dictionary).
b.	,,	Brother of.

[1] I am indebted to Prof. A S. Tritton of the Aligarh University for having drawn my attention to Fleischer, who has made some remarks about *Kunya*-names in his 'Kleinere Schriften' (I, 151). Fleischer, however, has nothing important to say on the subject.

Dmr.	for	Al-Damīrī's Ḥayātul-Ḥayawān al-Kubrā.
d.	,,	Daughter of.
dd.	,,	Daughters of.
DhR.	,,	The Diwan of Ghailan Ibn 'Uqbah known as Dhur-Rummah. Ed. C. H. Macartney. Cambridge, 1919.
En. Isl.	,,	The Encyclopædia of Islam.
F.	,,	Al-Firūzābādī's Al-Qāmūs.
f.	,,	Father of.
H.	,,	Al-Ḥarīrī, the author of the Maqāmāt.
Ham.	,,	The Ḥamasah. Ed. G. G. Freytag. Bonn., 1828.
HUE.	,,	Harmsworth's Universal Encyclopædia.
IM.	,,	Ibn Manẓūr's Lisānul-'Arab.
IS.	,,	Ibn al-Sikkīt.
Jahr.	,,	Al-Jawharī's Ṣiḥāḥ.
Jam.	,,	Jamharatul-'Amthāl of Abu Hilāl al-'Askarī. Cairo, 1310.
Kor.	,,	The Koran.
M.	,,	Al-Mizhar of Suyūṭī.
Maq.	,,	The Maqāmāt.
Mdn.	,,	Al-Maydānī's Majma ' ul-'Amthāl.
Mfd.	,,	The Mufaḍḍalīyāt. Ed. C. J. Lyall. Oxford, 1921.
MM.	,,	Al-Miṣbāḥul-Munīr of Al-Fayyūmī.
Ms.	,,	Al-Murassa ' of Ibn Al-'Athīr. Seybold, Semitistische Studien. 1896.
Mub.	,,	The Kamil of El-Mubarrad. Ed. W. Wright. Leipzig, 1864.
Nihaya.	,,	Al-Nihāyat of Ibn al-'Athīr.
R.	,,	Richardson, Persian Dictionary.
S.	,,	Salmone's Arabic-English Dictionary.
s.	,,	Son of.
ss.	,,	Sons of.
Taj.	,,	Tājul-'Arūs of Al-Zabīdī.
u.	,,	under.
Z.	,,	Al-Zamakhsharī's 'Asāsul-Bglāghat

I. ابو

ء ب د ابو الأَبَد ; Father of eternity: The vulture. It is so called because according to the popular Arabian belief a vulture attains to a thousand years of age, and is the lord (سيّد) of all the birds. (Dmr.) This belief has given rise to the proverb أَعمَرُ مِن النَسر: Of a longer age than the vulture.

ء ج ر — أَحَر ; f. a young lion: The lion. Also ابو الأَحَر

ء خ ذ — الأَخذ ; f. the seizure: The sparrow-hawk, the *falco nisus* (الباشق).

ء س د — أَسَد ; f. the lion: The bread (Jam.) Cf. ابو جابِر and ام جابِر.

ء م ن — الأَمن ; f. peace, security: A wild beast (سُبُع)

ء ن س — الأَنيس ; f. the sociable companion: (1) A basin (طشت), (2) A jug (إبريق).

— مُونِس ; f. the friend, companion: The ear.

ء و ب — أيوب ; f. Job: (1) The camel. So called because of its wonderfully patient and perseverant nature in bearing hardships in journeys and in carrying loads. It contains a reference to the patience of Job. (2) The jackal. The proverb لقيته بذِهن ابي ايوب (I met him with the mentality of Abu 'Ayyūb) is used when one overpowers, or gets the upper hand of (تمكّن) his adversary.

ء ي س — إياس ; f. 'Iyās: (1) A soap; anything (generally a powder made up of a mixture of different ingredients to wash hands and face with). H. has صافحوا اياإياس: They washed (their) hands with the soap (Maq. XIX). (2) A toothpick (Ms.).

ب ح ر — بَحْر ; f. the ocean (or sea) : The crab, which is also known as عقرب الماء (the scorpion of the water). (Dmr.)

— بُحَيْر[1] ; f. the fruitful land : The he-goat. So called probably because he eats away all the green and herbage growing in a بُحَيْر (=ريف).

ب ح ص — البُحَيْص ; f. Buḥays : The fox. But see ابو الحبيص

ب خ ت ر — البَخْتَر (and البَخْتَرِيّ) : f. Bakhtar : The serpent.

ب د ر — البَدَر ; f. the hasty one (?) : A species of fish, otherwise known as الهازباء.[2]

ب د و — البَدَوات ; f. the opinions : A resolute, self-confident person (حازم) to whom new opinions present themselves.

بَدَوات is the pl. of بَداة an opinion that occurs to one's mind and is different from the former opinions. This is the characteristic way in which the Arabs used to show their appreciation of a strong and resolute man. An analogous saying is السلطان ذو بدوات *i.e.*, a king has always some new opinion about matters before him.

ب ر د — الأَبْرَد ; f. the leopard : (1) The vulture. (2) The leopard.

— بُرَيْد ; f. Burayd : The magpie (العقعق).

ب ر ص — بُرْص (and بُرَيْص) ; f. the lizard called بُرْص : (1) A variety of the large lizard (وَزَغَة) known as سام ابرص. (2) A certain bird, otherwise known as بَلَعَة.

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[1] Ms. reads it as بَعير

[2] Golius reads this as هازبي and هازباء but does not note the *kunya*.

ب ر ق ش

بَرَاقِش —; f. the changing colours.[1] A bird, which is like a sparrow, and changes its colours. According to Al-Qazwīnī,[2] it has sweet voice, and has a long neck and long legs and a red beak, is of the size of a stork (لَقلَق), changes colour every now and then, and is red, blue, green and yellow. Further on it is described by Dmr.[3] (on the authority of Ibn Sīda) to be identical with the bird شُرشُور and is said to be like a sparrow, dust-coloured and having the elegance (لطافة) of a حُمَّرة. But Abul-'Abbās describes it as being a multi-coloured bird, the feathers of which change a number of colours (عدة الوان) in the day.[4] The proverb اَلْوَن مِن ابي براقش (A greater changeling than the Abu Barāqish) is used of one's changing (تحوّل) and fickleness (تنقّل). Likewise a poet's words:—

كابي براقش كل يو م لونه تتخيل

(Like Abu Barāqish whose colour changes every day) have become almost proverbial.

ب ر ك

اَلبَرَكَات —; f. blessings: The month of Ramaḍān.

اَلمُبَارَك —; f. the auspicious one: The raisins.

ب ر ل

بُرَائِل —; f. the feathers (رِيش) round about the neck: The cock. The nouns بُرَائِل and بُرَائِلِي (without Abu) also signify a cock.

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[1] The name is generally derived from بَرْقَشَة to paint or dob with different colours. Thus برقشت الثوب means I painted or dyed the cloth, and تبرقش signifies تزيّن (He adorned). Mdn., Z.

[2] Dmr. u. ابوبراقش.

[3] Under الشرشور.

[4] M.

ب ر و أبو براء—; f. the dust, or earth (تراب): A certain bird, otherwise called سموءل[1]

ب ش ر أبو البشر—; f. the mankind: Adam. Cf. ابن الطين. أبو بشر—; f. cheerfulness: Sweetmeats, dessert (نقل); and أبو البشر—the vulture.

ب ص ر أبو بصير—; f. a seeing one: (1) A blind person. According to Ms. the story of the origin of this appellation is that once Yashkur b. Wā'il al-Yashkurī was brought, while he was yet a boy, to Musaylima the Liar, who stroked (مسح على) his face and rendered him blind, so that he was so nicknamed. This was also the *kunya* of the poet Al-'A'shā. (2) A dog.

ب ط ل أبو الأبطال—; f. the brave (or courageous) persons: The lion.

ب ع د أبو البُعد—; f. distance: A great distance. Says Dhur-Rummah:—

وثيقة خبطنا غولها فارتمى بنا * أبو البعد من أرجائها المتطاوح[2]

ب ل د أبو البلاد—; f. cities, towns: One who alights (or halts) at any place he wishes, and is not prevented from doing so on account of his power and influence (لعزّه); or one who is bold and courageous enough to traverse dangerous places and perilous tracts of land, such as are not commonly traversed.

ب ل ص أبو بِلِصّى—; f. Bilissā: A certain bird, having short wings (جناح) and a long tail. (Ms.)

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[1] So Dmr. u. ابو براء. But he does not mention سموءل. Taj. confirms the *kunya* on the authority of Ibn al-'A'rābī, but does not describe the bird. It should be noted, however, that سُمَيْل and سُمَيْلة are also names of certain birds. Ms. reads it as ابو بُراء.

[2] DhR., XI, 33.

ب ن ت بَنَاتٍ—; f. daughters: One having many daughters. (R.)

بَنَاتُ غَيرٍ—; f. falsehoods, lies: A liar.[1] See بَنَاتُ غَيرٍ Taj. reads عِبرٍ for غَيرٍ See بَنَاتُ عِبرٍ.

ب ه ل البُهلُولِ—; f. the chief: The white hawk (الزَّرَق).

ب ي ت البَيتِ—; f. the house: The master, owner, occupier, of the house. Cf. ابو مثوى and ابو منزِل.

ب ي ض البَيضِ—; f. the eggs: The male ostrich (الظليم).

البَيضاءِ—; f. the white (men): The Abyssinian, the black man, the negro.

الأبيَضِ—; f. the white: (1) Milk. (2) The black man.[2]

ت م ر تَمرَةٍ—; f. a date: A certain bird of a very small magnitude. See ابن تمرة.

التَّامُورِ—; f. the lion's lair[3]: The lion.

ث ق ف ثَقِيفٍ—; f. an acid: Vinegar. So named from its acidity, and from the fact that it makes food acid.

ث ق ل الأثقالِ—; f. the burdens: The mule.

ث ل ث ثَلاثِينَ—; f. thirty: The male ostrich, which is so called from the fact that a female ostrich lays thirty eggs.[4]

ث م م ثُمامَةَ—; f. Thumāma: (1) The wolf. (2) The hoopoe bird.

ث ن ي المُثَنَّى—; f. the double one: The almond (اللَّوز).

ث و ي مَثوى—(and المثوى): f. the abode (or residence): (1) The master of the dwelling. (2) The guest. (3) The

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[1] M. from Abul-'Abbās.

[2] Ms.

[3] Ms., التامور خيسة الذي يأوي اليه.

[4] Ms.

host. From this comes ابو مثوى الرجل meaning: the host who entertains one (*i.e.*, a guest) and whom one betakes himself to for lodging; as also the guest himself. Cf. ابو منزل and ام مثوى.

ج ا د

جاد—: (1) The first thing that a child is taught to write; the 'Abujad (حساب الجمل); (2) they say جاء بابى جاد: He has come with ابوجاد—*i.e.*, he lies, utters falsehood. So also is the saying وقع فى ابى جاد: He fell into Abu Jād, *i.e.*, in confusion and perplexity. It is also explained as (3) a calamity, misfortune (داهية).

ج ب ر

جابِر—; f. repair (or recovery): The bread. Cf. ام جابِر.

ج ح دف

جَحادِف—; f. Jaḥādif: The crow.[1]

ج خ دب

جُحادِب—; as also ابو جُحادِبى (according to Tha'lab) and ابو جُحادِباء (as in IM.)—the pl. being with the *fetha* of ج—signifying strong and plump (الضخم الغليظ) men and camels, as in a line of Ru'ba: شَدّاخة ضخم الضلوع جُحُدُبا—though Ibn Barrī thinks that Al-Jawharī is mistaken in applying جحدب in this line to the camel, for it stands really for the horse. But جحدب also signifies a species of the locust (جندب), and جُحادِب and جُحُدُب (as also ابوجحادِباء) as well denote a species of the locust, which is green in colour and has long legs (ابوجحادب being a proper name for it, just as ابوحارث is a proper name for the lion,—for you say هذا ابوجحادب قد جاء) or, it is plump, dust-coloured and has small holes in the body (اَخرَش). Accord-

[1] Ms. reads it as ابو جُحادِب.

ing to Layth the جُحْدَى and ابو جحدَى are species of locusts (hence the dual form ابو جحداديان), such as are green and long-legged, and they are also known as ابوجحادب. Again, Ibn al-'A'rābī regards ابو جحادب as a little animal (دابة) which is otherwise known as الحُمْطُوط; and Al-Sayrāfī thinks that ابو ححادباء is an animal like the chamelion (الحرباء) and is also called جحدب (pl. جحادب). F. interprets جحدب as a beetle (حمفساء) and also as a lion, on account of its being quick and valiant, from جحدبة which signifies quickness (سرعة) and valour (جرأة). The *kunya* is also used as a term of reviling and vituperation.

جُحْدَبِي—: See u. ابو جحادب above.

ج ر ح الجراح—; f. the wounds: The crow.

ج ر د جَرادَة—; f. a locust: The bird known among the people of 'Irāq as باذنجان, and the people of Syria call it بصير. If its flesh be taken, melted, and the body of a sufferer from piles be anointed with it, it does him immense good. (Dmr.)

الجُرْدانِ—; f. male donkeys: A certain plant (or tree) which comes out as if it were so many huge pillars; and is similarised to male donkeys (جردان).

ج ر و الجَرْوِ—; (pronounced with each one of the three vowels on ج): f. the whelp: The lion.

ج س د الأَجْسادِ—; f. the bodies: sulphur. (R.)

ج ع د الجَعْدِ—; f. the curly hair (or, of the camel having abundant and curly hair): The camel. (IM.)

جَعْدَة—; f. the goat: The wolf. The words of the poet 'Abīd b. al-'Abras (particularly

the second hemistich) have become proverbial :

وقالوا هي الخمرة تكني العلا * كما الذئب يكني اباجعدة

i.e., the wine, though called علا (gold), is a vicious thing ; and so also is the wolf, who though having such a mild name as ابوجعدة is yet a deadly beast.

جُعَادَة— ; (with *fetha* or *damma* on ج) ; f. miserliness (from جعد اليدين a miser) : The wolf.

جاعِد— ; f. Jā'id : The wolf.

ج ع ر

جاعِرة— ; f. dung : The large black crow (الغُداف).

جُعران— ; f. the beetles : The black beetle (جُعَل). It is so called because it collects up the dry dung (الجعر اليابس) and hoards it up in its hole.[1] It is otherwise known as الزُعقُوق. It bites the beasts (البهائم) in their فروج and they run. It is larger than the ordinary beetle (الخنفساء) and is of a dark black colour, with some redness in its abdomen. Its male has two feelers (قرنان). It is found abundantly in the resting places of the cows and buffaloes, and in places of the dung. It is born mostly from the dung of the cows (احشاء البقر). Its characteristic habit is the collection and hoarding up of filth, and the wonderful fact about it is that it faints away (يموت) under the effect of the flavour of the rose and any other fragrant smell, but when returned to the dung it revives. It has two wings which appear only when it flies. It has six feet and a very well-defined hump (سنام مرتفع جدا). It walks with retrograde steps (القهقري), and when it wishes to fly it flutters up its wings first. A modern (Egyptian) proverb says

[1] This and the following description is from Dmr u, جعل

مَن كان طبّاخهُ ابو جعران ماعسى تكون الالوان (Of him whose cook is a beetle, what may not be the dishes ?)—*i.e.*, what can the work be if slovenly fools are employed to execute it.[1] Burckhardt explains it as " the largest species of خنفس or scarabaeus, and," he goes on to say, it is " cited like the latter as an emblem of ugliness and filth."[2]

ج ع ف ر جعفَر—; f. Ja'far : The fly.

ج ف ل جُفالِ—; f. abundant wool : The wolf.[3]

ج ل ب ق الجلوبق—; f. Jalawbaq: A term of reviling and abusing. Says a poet :—

يلقي بنات ابي الجلوبق مُزغًا * محض القيون ومابهن نفارُ

ج ل ح الجَلاح—; f. the great eater : The bear.

ج ل س الجُلَّسانِ—; f. the rose-garden : The bugloss plant. (R.) لسان is the Arabicised form of the Persian word گلشن=a rose-garden, or a garden in general.

ج ل ل جُلّ—; f. flower: The alkanet root. (R.) جلّ is the Arabicised form of the Persian گل (a rose-flower, or a flower in general).

ج م ح الجُمَيح—: f. al-Jumayḥ : The penis.

ع م ج جمع—; f. company : The night.

جامع—: f. the whole, entire, all : (1) A tray (خوان), or a table-cloth. Says H. فاستدع ابا جامع فانه بُشري كل جائع : Then send for the tray, for therein lies a happy news for every one who be hungry.[5]

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[1] Burckhardts, Arabic Proverbs. p. 238.
[2] Ibid.
[3] Ms. reads ج with a *kesra*, which does not seem to me to be correct.
[4] Ms., p. 60.
[5] Maq., XIX.

ج م ل جُمَيل — ; f. the beautiful : (1) Vegetables, so called because it adds to the beauty of the table. H. has لو استحضرت اباجميل لجمّل اي تجميل : Oh, how extremely kind you will be if you only order vegetable (dishes) to be brought.[1] (2) The pot-herbs (R.) (3) A woman's فرج

المتجمّل — ; f. the beautiful : The tortoise.

ج ن ن الجِنّ — ; f. the genii : The Devil ; as in al-Farazdaq's verse :—

الا طارقا ذئبٌ يوقع ناقتي * ابو الجن ابليس بغير خطام[2]

مَجْنُون — ; f. the hidden one : mustard.

ج ن د الجُنَيد[3] — ; f. Junayd : The فرج of a woman.

ج ه د الجِهاد — ; f. exertion : Hunger.

ج ه ل جَهْل — ; f. barbarity : The leopard.

ج ه م جَهْم — ; f. an ugly face : (1) The hog. (2) The buffalo.

ج ه ن جُهَيْنة — ; f. the plump one : The bear. جَهْن (whence جهينة) signifies plumpness of the body and the face.

ج و ل جَوّال — ; f. one who goes about very much : The mouse.

ج و ن الجَوْن — ; f. the black : The white man. Cf. ابو البيضاء

ج ي ش الجَيْش — ; f. the army : The eagle, the falcon.

ح ب ب حَبيب — ; f. the friend : (1) The monkey. (2) The kid. H. has ثم عزّد بي حبيب المحبّب الي كل لبيب[4] :

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[1] Ibid.

[2] Ms.

[3] Ms. reads it as ابو الجنيد (p. 196).

[4] Maq., XIX.

Then bring up the meat of the kid, a thing that every wise man loves. (3) A thin bread.

حُبابٌ—; f. a bubble : Water (Ms.).

حُباحِبٌ—; f. fire : (1) The fire from which no benefit can be derived. حباحب (and نارُ الحباحب) signify the sparks of fire that rise from the striking of the horse's hoofs on stony grounds, or the sparks that fall from the pieces of wood that are used to strike fire by a process of friction. The *kunya* originated from a miser named ابو حُباحِبٍ who used to hide his fire from the people's view so that they may not expect his hospitality, and consequently became proverbial. (2) Al-'Akhfash (on the authority of Al-'Aṣma'ī) says it signifies a little insect that appears at night, and while it flies you think it is fire,[1]—the glow-worm. So also is Abu Ṭālib's opinion, who records the testimony of the people of the desert to the effect that حباحب is the name of a flying insect, larger than the common fly and slender, that flies between sunset and night-fall and is like a spark of fire.[2]

ح ب س حابِسٌ—; f. a withholder : The door.

ح ب ص الحُبَيْصُ[3]—: f. Ḥubays : The fox.

ح ت م حاتِمٌ—; f. Ḥātim : (1) The dog. (Ms.) (2) The crow. حاتم signifies anything black, and is also used in the sense of a crow (or raven). A dog is so called perhaps from its habit of appropriating the bones and crumbs thrown by the master, to the

[1] Quoted by M. from Abul-'Abbās.

[2] Taj.

[3] This is (according to Ms. the correct form of ابو البحيص (q.v.). I am inclined to read it as حُبَيْصٌ (=حَرَكَةٌ—Taj. from the Nawādir) from حبص to run hard.

total exclusion of the other pets in the house, as if it were a judge (حاكم) to decide the taking of shares.

ح ج ب حاجِب—; f. a door-keeper: (1) The fire. (2) A term of abuse with which a person is reviled.[1] (Ms.)

ح ج ج الحَجّاج—; f. the great pilgrim: (1) The eagle. (2) The pheasant. (3) The elephant.

ح ج د حُدَيج—; f. Ḥudayj. The stork (اللقلق); so called by the people of Iraq. حُدَجة is a small bird resembling the قطا.

ح د ر حَدَرَة—; f. the sharp-sighted eye: A bird of the Hijaz. (Ms.)

ح ذ ر حَذَر—; f. caution (or fear): (1) The crow. (2) The lion. (3) An insect which lives high up among the rocks, raises and lowers its head on account of fear, and changes colours in heat.[2]

ح ر ب مِحراب—; f. a private chamber (which is quite out of the way of the people): The lion.

المَحارِيب—; same as ابو محراب

ح ر ث الحارِث—; f. the guard: The lion, tiger. H. mentions جراءة ذي الحارث (Maq. XIX). This *kunya* is regarded to be as good as a proper name for the lion.

ح ر ر الحُرّ—; f. the free: The table-cloth, tray (خوان)

مُحَرِّر—; f. a graceful (or modest) speaker: The sparrow.[3]

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[1] According to Abu Sahl it may be ابو جاحب from رجل جحابة: A useless man. Ms., p. 73.

[2] Ms., p. 74.

[3] Ms. reads this as ابو مسرز, but not so Dmr.

ح ر م ز

الحِرماز—; f. Ḥirmāz: The elephant. Ibn ʿAthīr (Ms.) reads it as الحِرماز which should be regarded as coming from حرمزة which signifies sagacity (ذكاء), thus attributing to the elephant a subtlety of intellect and perception.

الحِرمان—; f. mishap: Weakness, powerlessness.

ح ر ن

حرون—; f. restiveness (refractoriness): The mule. (Dmr.) So called from the restive and refractory nature of the animal.

ح ر ي

الحَرْية—; f. the hiding place (or refuge) of a gazelle: The lion; so called from his habit of hunting the deer out of their refuges in the jungle.

ح س ب

حُسبا—; f. sufficiency: The eagle.

ح س ل

حِسْل—(and الحِسل): f. the young lizard (ضب): The lizard called ضب.

حُسَيْل—(and الحُسيل); same as ابوحسل q. v.

ح س ن

الحُسْن—; f. beauty: (1) The peacock. (2) A bird obtainable in various colours, as red, yellow, white, black, blue and green. It is known among the people of Andalus as حَسُون while the Egyptians name it as ادوزفاية (or ابو سفاية). It is trainable, and when trained it can carry something from one person to another. It is counted among the ordinary sparrows (عموم العصافير).[1] (3) One possessed of beauty, a beautiful person. (R.)

الحُسَين—; f. the little beautiful thing: The gazelle.

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[1] Dmr. u. حسون.

حُسّان—(with and without *teshdid* of س); the very beautiful, comely: (1) The eagle. (2) The cock. (Dmr.)

ح ش ي الحُشَّي—; f. the breathless one (owing to running): The rabbit.

ح ص ن الحِصْن—; f. the fortress (or stronghold): The fox. (F.)

الحَصِين—; f. the stronghold: A coat-of-mail.

الحُصَيْن—; f. the little fortress: The fox.

ح ط م حُطَم—; f. the lion (that crushes or bruises everything it devours): The lion.

ح ط ن حِطّان—; f. Ḥiṭṭān: The leopard. (Ms.)

ح ف ص حَفْص—; f. a cub: (1) The lion. (2) The fly. (Dmr.) (3) The fox; so named as a satire.

ح ك م الحَكَم—; f. the judge (or arbiter): The weasel (ابن عرس). According to Al-Qazwīnī,[1] it is a fine (دقيق) animal, inimical towards the rat, in whose hole it enters and turns it out. It is also inimical towards the hippopotamus (التمساح), so that when he opens the mouth it enters it, gets down into his belly (جوف), eats his entrails, rends up the skin and comes out again. It is also an enemy of the serpent, whom it kills. When it contracts some disease, it eats the eggs of the hen, and recovers from the ailment.

ح ك م حَكيم—; f. a philosopher (or a wise man): The fly.

ح ل ج الحَلّاج—; f. the wool-carder: The bear. (Dmr.)

[1] Quoted by Dmr. u. ابن عرس.

ح م د حَمّاد—; f. a great praiser (or, of one who praises time after time): The cock. So called from its frequent crowing.

مَحْمُود—; f. the praised one: (1) Incense (بخور). (2) The wild ass.

حَمِيد—; f. the praiseworthy: The bear. (Dmr.)

ح م ر الحَمْراء—; f. the red one: The hawk. (Dmr.)

حُمْران—; f. Ḥumrān: The intoxicating beverage called نبيذ.

ح ن ب ص الحَنْبَص—; f. the deceptive (or dodging): The fox. حَنْبَصَة signifies deceiving, dodging, outwitting in war.

ح و ب حُوب—; f. trouble (or affliction): One in trouble, an afflicted person. They say هاؤلاء عيالُ ابي حوب: This is the family of an afflicted person.

ح و ل الحَوْلاء—; f. the squint-eyed (woman): The sphinx. (R.)

ح ى ل الحِيَل—; f. stratagems: The fox. (R.)

ح ى ى الحَياة—; f. life: Rain, water.

يحيى—; f. Yaḥyā (The living): (1) The vulture. (2) The viper; so called because it lives for a thousand years.[1] The same reason may be applied in the case of the vultures' being so named (see ابو الابد). (3) Death. H. has حتي كاد يسلبه ثوب المحيا ويسلمه الي ابي يحيى: Till he was about to snatch away his garment of life and hand him over to death.[2]

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[1] Dmr. u. الانى.

[2] Maq., XIX.

حَيّان—; f. Ḥayyān: (1) The viper.[1] (2) The panther.[2] (3) Water.[2]

خ ب ب خُبَيب—; f. guile (trick, or mischief—from خبّ): The monkey.

خ ب ر الأَخبار—; f. the news: The hoopoe bird. This *kunya* owes its origin to the mythological hoopoe who worked as a messenger of King Solomon to the Queen of Sheba.

خ ث م خَيثَمة—; f. the female leopard: The spider; so named probably from its habit of leaping and jumping like a leopard.

خ ج د الخَجدَر—; f. an atheist: A godless, untrustworthy person.[3]

خ د ر الخِدر—; f. a curtain, veil: The lion; so called from its habit of seclusion in its lair.

خ د ش خِداش—; f. mutual scratching: (1) The cat. Note that مُخادِش and مُخَدِّش also signify the cat, which is so called evidently for its habit of scratching the body of its opponent.[4] (2) The rabbit.[2]

الخَدُوش—; f. the scratching one: The fly.

خ ر ن ق الخِرنِق—; f. a young rabbit: The rabbit, hare.

خ ش ر م الخَشرَم—; f. the hornet, wasp: The wasp, the hornet (Ms.)

خ ص ب الخَصيب—; f. the fresh one, the plentious one: Flesh, meat.[5]

الخِضر; — f. the green one: The vegetable.

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[1] Dmr.
[2] Ms.
[3] Burhan.
[4] Taj. u. خدش.
[5] R. reads it as ابوالخصب.

الأَخْضَر—; f. the green one : (1) The bird called وَرَشان and otherwise known as ساق حرّ which is the male of a turtle-dove (القمري), called by some as وَرَشِين something between a dove and a pigeon.[1] (2) Flowers. (R.)

خ ط ب خَطّاب—; f. one who is given to much of marrying : (1) The leopard. (2) The partridge (Ms.)

خ ط ر خَطّار—; f. one who moves the tail while walking : The partridge. (Dmr.)

خ ط ف خَطّاف—(or الخطاف) : f. the great snatcher (or seizer) : (1) The leopard. (2) The kite. Both of them are birds of prey, and hence the epithet.

خ ط ل الأَخْطَل—; f. one who has flaccid and long ears : A coarse horse, a jade, a hackney (برذون). So called on account of the flaccidity of its ears.

خ ل د خالِد—; f. Khālid : (1) The monkey.[2] (2) The dog. (3) The fox. (4) The ocean, sea.[3]

مُخَلَّد—; f. the eternal one : The Devil.

خ ل س خَلْساء—; f. Khalsā' (lit. herbage that is partly green and partly yellow) : Melilot; the bugloss plant, known in Persian as شنكار and in Arabic as حناء الغزالة.[2]

خ ل ط الخَلِيط—; f. the mixed one : The food known as خبيص.

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[1] Dmr. u. الور هان

[2] Burhān.

[3] Ms. refers back the origin of this *kunya* to Moses, who called the sea by this epithet when he was being followed by the Pharaoh and wanted to split up the sea to make a passage for his people to pass. This hardly deserves any serious attention,

خ ل ف خَلْفٍ—; f. posterity, progeny : The monkey.

مُخْتَلِفٍ—; f. the different one : A dinner on occasion of mourning.

خ ن ث ر خَنَاثِيرِ—; f. the weak, mean persons: A cunning, astute, wily person (الداهية من الرجال).

خَنَاسِيرِ—; Same as خَنَاثِيرِ—above. So also is اخو خَنَاثِيرِ q.v.

Says Al-Qulākh :—

انا القُلَّاخ ابن جناب بن جلا * ابو خَنَاثِيرِ اقود الجَمَلَا[1]

خ ي ب خَائِبٍ—; f. the disappointed, hopeless one: Laziness, procrastination (التسويف). (Ms.)

خ ي ر الخَيِّرِ—; f. the good: The table, table-cloth (المائدة).

مُخْتَارٍ—(and المختار); f. the chooser: The mule.

خ ي س الأَخْيَاسِ—; f. the thickets, lairs: The lion.

د ب ل دُبَالٍ—; f. with *fetḥa* and *ḍamma* on د; f. dung: The bull. (R.)

د ث ر دِثَارٍ—; f. the garment (or underwear): (1) The thin curtain (كِلَّة) by which one protects oneself from the mosquitoes, the mosquito curtain. (2) The gnat,—so called because it is concealed in the day time, or because a دثار is wanted to protect one from its attacks.[2]

د ح ر ج مُدَحْرَجٍ—; f. the rolled one : The calf (العجل).

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[1] Ms., p. 85.

[2] Taj. u. دثر.

د خ ن دُخْنَة—; f. incense (or any aromatic drug for fumigation): A certain bird the colour of which is like that of a lark (قُبَّرة).

د ر ج دَرَّاج—; f. a creeper: A certain small bird. (Taj.)

د ر س دارِس[1]—; f. *dāris* (from دَرِس=لحَيض): (1) The *pudendum muliebre*. (2) A foolish person.

أَدْراس—; f. adrās (pl. of دِرْس): Same as ابو دارِس. Also see ام ادراس

إِدْرِيس[2]—; f. 'Idrīs: The penis.

د ر ص دِرْص—; f. the little mouse (or kitten, or puppy): A foolish person, who is so called as if he were the father of a mouse; or one who plays like children with the mice and kitten and puppies.[3]

د ر ك مُدْرِك—; f. the overtaker: The horse.

د س م دُسْمَة—; f. blackness: The Abyssinian.

د غ ف الدَّغْفاء—; f. one (woman) who eats much: A fool, foolish person.[4]

دَغْفَل—; f. a young elephant: The elephant.

د ف ع مِدْفَع—; f. the canon: Arabic designation for the Spanish duro, a coin bearing the imprint of a colonnade. Cf. ابو طاقة

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[1] Ms. reads it as دَراس.

[2] Ms. reads it as دَرِيس.

[3] Dmr. u. الدرص on the authority of Al-Suhayli. Ms. reads it as ابو أَهراص.

[4] Taj. u. دغف and Al-Taṣrīh (Al-'Azharī's Commentary on Ibn Mālik's Alfiyyah), vol. I, p. 125. According to Ibn Barrī it is also read with the unpointed ع (Taj.)

د ق ش الدُّقَيْشِ—; f. the little دَقْشة bird. An insect, with a speckled body, and smaller than a lizard (عَظاءة); or it is a bird. (Ms.)

د ل ج مُدْلِجٍ—; f. a night-traveller (or walker-about): (1) The hedge-hog,—so called because he goes about at night. (2) The cock. (Dmr.)

د ل ف دُلَفٍ—; f. a gentle walk: The hog.

د ه ر الدَّهْرِ—; f. Time: eagle.

د ه م الأَدْهَمِ—; f. the black one: A great cooking caldron in which an entire sheep may be cooked and dressed.[1] So called because a considerable part of it is black.[2]

د و ر دارَةٍ—; f. a table-land: The cooking pot. The table-land may contain a reference to the hearth.

ذ ء ب ذِئْبٍ—; f. the wolf: The jackal.[3]

ذ ب ب الذُّبابِ—; f. the (common) fly: A person having stinking breath. Some say ابو الذبّانِ—f. of flies (in pl.), whence comes the proverb ابكر من ابي الذباب (or ابي الذبّان): More stinking than ابو الذباب.

ذ ر ح ذُرَاحٍ—; f. *Dhurāḥ*: The Cantharis, or Spanish fly: a kind of insect of a red colour, speckled with black, which flies and is of a poisonous nature.

ذُرَحْرَحٍ—and ذُرَحْرَحَةٍ and ذَرِياحٍ—: Same as Abu Dhurāḥ, q. v.

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[1] So in Golius, Arab. Lex.

[2] Ms.

[3] Dmr. u. ابن آوى.

ذ ر ي ح —ذِرْيَاح; f. Dhiryāḥ: A certain small bird. (Ms.)

ذ ع ر —مَذْعُور; f. the frightened one: The serpent. (Dmr.)

ذ ك ر —ذِكْرَي; f. fame: The turtle-dove (Dmr.). So called from its sweet chirpings, or perhaps the name is based on the popular belief that its notes denote سبحان الله the formula used in glorifying God (ذكر = ذكرى).

ذ ي ل —ذَيَّال; f. a long-tailed one: (1) The ox; so called for its long tail. (2) The ostrich.

ر ء س —الرُّئَيْس; f. the little head: One who has a large head, and, therefore, also a big turban.[1]

ر ء ل —الرِّئَال; f. young ostriches: The male ostrich.

ر ء ي —رِئَة; f. the lungs: The monkey. (Dmr.)

ر ب ح —رَبَاح; f. liberality: The bird known as يُؤيُؤ and جلم which is a kind of hawk or falcon. It is one of the hunting birds resembling the باشق.[2]

ر ب ع —الرَّبِيع; f. the spring (season): (1) The hoopoe. (2) The serpent, the black cobra (اسود سالخ).[3]

ر ج ء —الرَّجَاء; f. hope: (1) A table-cloth. (2) A frying-pan (مشواة).[4]

ر ح ب —مَرْحَب; f. (and المرحب)[5]: f. the plain, smooth place: The shade. Says Al-Nābigha' al-Ja'dī:—

وكيف تُواصل مَن اصبحت * خَلالته كابي مرحب

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[1] Z. u. (ابي).
[2] Dmr. u. يُؤيُؤ.
[3] Ms.
[4] Without ال it denotes a sale or a purchase (شراء). Ms. p. 105.
[5] M. from Abul-'Abbās.

(And how will you like to hold communion with him whose friendship is like the shade ?)

ر د س —مِرْداسٍ; f. a stone: A great serpent, a dragon (اَتْنِّين). (Dmr.)

ر ز ح —رِزَاحٍ; f. fatigue: The lion.

ر ز ن —رِزِينٍ; f. the heavy (or, weighty and grave) one: (1) The food called حَبِيص which is prepared from dates, clarified butter and starch. H. mentions it in Maq. XIX. (2) Vegetables.[1]

ر س ل —المِرْسَلِ; f. the small (or short) arrow: The leopard.

ر ش د —رَاشِدٍ; f. one who takes (or follows) the right way: (1) The rat, mouse. (2) The monkey. (M.)

ر ع ل —رَعَالَةٍ; f. a numerous family: The wolf.

ر ف ع —رَافِعٍ; f. the high one: The weasel. (M.)

ر ق د —رُقَادٍ; f. sleep: The weasel (ابن عرس).

ر ق ش —رَقَاشٍ; f. one speckled with black and white: The leopard.

ر ق ل —المِرْقَالِ; f. the one who walks quickly (or struttingly): The crow. A poet says :—

ان الغراب و كان يمشي مشية * في ما مضي من سالف الاحوال
حسد القطاة فرام يمشي مشيها * فاصابه ضرب من العقال
فاضل مشيتها واخطاه مشية * فلذاك نكّره ابا المرقال

That is, the deformed gait of the crow is responsible for the *kunya*.

ر م ح —رُمَيْحٍ; f. a small lance: The penis.

ر و ح —رَوْحٍ; f. good (happy) news: The hoopoe.

[1] Ms.

أَرْوَاح—; f. the spirits (or essences): Quicksilver (R.).

الرِّيح—; f. the wind: The wind. When the wind stops and the heat increases the Arabs say: مات ابو الريح The Father of Wind has died.[1]

الرِّيَاح—; f. the winds: (1) The bird called يؤ يؤ which is a kind of hawk.[2] (2) The weather-cock.[3] (3) A kind of windbolt with which children play: called by some ابن الرياح They say the first person to use it was Musaylima the Liar, who learned it from the people of Syria. Says a poet[4]:—

مسايمة اليمامة كان أدهى * وأكذب حين سار الى سجاح
ليخدع قومه بأبي رياح * و قارر و مقصوص الجناح

But ابو رِيَاح (without ل) indicates (1) an old pair of socks, and (2) the يؤ يؤ bird.[5]

رَاحَة—; f. comfort, ease: Sleep.

ر ى ش رِيش—; f. plumage; superb clothing: Senna.

ز ب ع زَوْبَعَة—; See u. زوبعة ام. Used both as a declinable and an indeclinable noun.

ز ج ر زَاجِر—; f. a diviner: The crow. So called because one augurs by means of it. See H., Maq. XLIX.

ز ح م مُزَاحِم—; f. a preventer: (1) An elephant. An elephant is known as مزاحم as well as ابن مزاحم (2) A bull having horns, or the one having horns broken. (Taj.)

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[1] Ms., p. 106.
[2] Dmr. u. اليؤ يؤ.
[3] HUE., u. Abu.
[4] Ms., p. 106.
[5] Ibid.

ز ر د الزَّرْدانِ—; f. the *pudendum muliebre*: The فرج of a woman.

ز ر ر زُرارَةُ—; f. Zurāra[1]: The starling bird (زُرْزُور).

ز ر ع زُرْعَةٌ—; f. a seed: (1) The hog. (2) The ox. (3) The bread.

ز ر ق الزَّرْقاءُ—: f. the blue one: The oil of olives (الزَّيْت), or an oil in general.

زُرَيْق—; f. Zurayq: A certain bird, otherwise known as زِرْياب[1]; or, it is the partridge. It is fond of company with men, is trainable, quick in grasping whatever is taught to it, . . . and can utter clearly the letters it has learned to pronounce, so much so that the hearer does not doubt its being a human voice.[2]

ز ع ف ر الزَّعْفَرانِ—; f. saffron: The lion; so called because it is often smeared with blood.[3]

ز ع ل زَعْلانِ—; f. the lively: The thickest string of a musical instrument.

ز ف ر الزَّفِر[4]—; f. deep sighs: The goose (الوَزّ) (Ms.)

ز ف ي زَفايَةٌ—; see ابو الحُسَن.

ز ك ر زَكَرِي—; f. Zechariah: The ring-dove. زَكَرِي[5] is one of the four different forms of زَكَرِيّا who was one of the prophets of the Old Testament.

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[1] M. from Abu 'Ubayda.
[2] Dmr. u. ابو زريق.
[3] Ms., pp. 113-114.
[4] M. quotes it wrongly without ال
[5] The *Teshdid* on ي as read by Seybold (Ms., p. 114) seems to be incorrect.

ز ن د ق زِنْدِيق[1]—; f. the freethinker[2]: The chamelion. So called perhaps because it changes its colour so often like a *zindīq* changing his views about religion.

ز ن ن زِنَّة—; f. buzz, hum: The monkey. So is also ابو زِنَّات.

ز ن ي زِنَة—; f. fornication, adultery: A term of vituperation and reviling (Jam.). This shows that زِنَة is only another form of زِنْيَة with زِنَوِي as its noun of relation.

ز ي د زِيَاد—; f. Ziyād: (1) The domestic ass. Some poet says (satirizing Ziyād Ibn'Abīh, the half-brother of Mu'āwiya[4])

زِيَادٌ لستُ أَدري مَن ابوه ✻ ولكن الحمار ابو زياد

(2) The penis. Says a poet:—

تحاول ان تُقيم ايازياد ✻ و دون قيامه شيب الغراب

(3) The food called زِهدياج[3]

زَيْد—; f. Zayd: (1) Old age. (2) The magpie (العَقْعَق) (M.)

زَيْدَان—; f. development, growth: (1) A certain bird. (2) The crow[4] (Dmr.) (3) A well-known medicine, known among the physicians as الفاو نيا and عود الكهنيا and عود الصليب. And in the Crete

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[1] So Dmr.; but Ms. (p. 114) reads it with ل.

[2] I translate زنديق as a freethinker to find some way out of a large and confused mass of interpretation to which the word has been subjected.

[3] Dmr. u. ابو زياد on the authority of the Ms.

[4] In this sense Ms. (p. 106) reads it with the unpointed ز and explains ابو زيدان as merely a species of bird (ضوب من الطير), p. 114.

Island it is known as عود السلام. It is the root of a plant.[1]

ز ي ن المُزَيِّن —; f. the decorated one: Flowers.

س ب ر سِبْء —; f. a young hyena: a hyena having a wolf for its father.

س ب ل سَبَلَة —; f. a moustache: The wolf. (Dmr.)

س ت ه لَسْتاه —; f. posteriors: One who has large posteriors.

س ج د سِجّاد —; f. one who prostrates himself much (in prayer): The hoopoe. So called after the numerous bows of its tuft as it walks.[2]

س ح ق إسحاق —; f. Isaac: The green wood-pecker (الشقراق).

س ح ل سَحْل —; f. a white garment: The aquatic bird. See ابن الماء

س ر س سِيراس —; f. Sīrās: An animal which is described by Al-Qazwīnī to be found among the reed-banks (الغياض), has twelve holes bored in the nose (قصبة لا ف). When it breathes there is heard from its nose a note like one proceeding from musical instruments (المزا هير), and the animals gather round it to enjoy music. In the meantime it terrifies some of them, preys upon them and eats them. But if it is not able to get any game, it screams aloud with a terrible voice, and the animals disperse and run away.[3]

س ر ع سَرِيع —; f. the quick: The fire of the wood of شبح and the إلاء trees (نار الزحفتين), or that of the عرفج It is so called because it takes fire quickly.[4]

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[1] Taj. u. زيد
[2] En. Isl., Art. Hudhud.
[3] Dmr. u. ابو سيراس
[4] Taj. on the authority of Ibn Barrī.

س ر ق سُرَاقَة—; Surāqa[t]: The sparrow-hawk (الباشق).

س ر و السَّرْو—; f. liberality: Things (like aloes-wood, etc.) used for fumigation as incense (البخور). H. says, فطف علينهم ابا السرو فانه عنوان السرو[1]: Then send round the incense, which is a mark of liberality and munificence.

س ع د سَعْد—; f. good luck: Extreme old age (الهرم).[2]

مَسْعُود—; f. the lucky one: The hawk (الزرّق).

س ف ر المُسَافِر—; f. the traveller: A cheese (الجبن).

س ف ي سَفَايَة—; f. Safāya: Same as ابو زناية q. v.

سُفْيَان—; f. Sufyān: (1) The beaver, the hedge-hog, otherwise known as عُسَاعِس and أَنْقَد.[3]

(2) An aquatic bird known as طِيطَوَى.

س ق ر السَّقْر—; f. the heat of the sun: The hawk.

س ق ط سِقْط—; f. fire (obtained from the firesticks): The upper (أعلى) firestick. Says Dhur-Rummah:—

وسقاكمين الديك عاورت صاحبي * أباها وهيّانا لموقعها وكرا[4]

س ل ع م سِلْعَاة—; f. a large-nosed and large-mouthed one: The wolf. According to F. the word سِلْعام also indicates a thin wolf having a long muzzle (الخطم الطويلة).

س ل م سَلْمَة—; f. Salma[t]: The bear.

سَلْمَى—; f. Salmā: The species of the lizard called ضَبّ, (F.); or, it is the same as ابو سَلمان.

[1] Maq., XIX.
[2] M. from IS.
[3] Dmr.
[4] DhR., XXIV, 28.

سَلْمان— ; f. Salmān: A species of the black beetle (الخنفساء). According to Ibn Athīr[1] some people call it ابوسُلَيمان and explain it as a lizard (وزغ).

سُلَيمان— ; f. Solomon: (1) The cock. (2) The goat of the Hijaz (الحُنطُب).[2]

س م ح السَمْح— ; f. generosity: The sweet pancake (الزَلابية).

س ب ن س سِنْبِس— ; f. Sinbis: The black beetle (جُعَل).

س ه ل سَهْل— ; f. a plain: (1) The leopard. (2) The eel, the snake-fish (لمار ماهي).

سُهَيل— ; f. the small plain; The leopard.

س و د الأَسْوَد— ; f. the black one: The leopard.

س و غ سائِغ— ; f. the palatable one: The food called فالوذج.

ش ء م الشُؤم— ; f. ill-luck: The crow. So called probably because it is supposed to bring about ill luck and separation.

ش ب ق شُبْقُونَة— ; f. Shubqūna': A certain bird which accompanies the asses and the cattle, and eats flies.[3]

ش ب ل شِبْل— ; f. the whelp: The lion. So is also ابوالاشبال

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[1] Ms., p. 118.

[2] Ibid. Seybold's reading of this word with the pointed ب is not correct.

[3] Dmr. on the authority of the Muraṣṣa'. But the author of the Muraṣṣa' does not mention it at all.

ش ج ع —شُجاعٍ; f. the brave: (1) The horse. (2) The camel. (3) The hawk.

ش ح ج —الأَشْحَجِ; f. the braying: The mule.

ش ح م —شَحْمٍ; f. fat: The small species of what is called حِمارُ قَدَنٍ (Taj.), which is, according to Dmr., a roundish insect (دويبة مستديرة) of the size of a *dīnār*, born in moist places. It has a raised back, on which there is a protuberance like a shield (المجن), so that when it walks the back becomes like a cupola (قبة) and nothing is seen of it except the sides of its feet. Nor is its head seen while it is moving, except when it is turned down on its back, for the front of its face is dyked (حاجز) and roundish. In colour it is less blackish than the خنفساء and is also smaller than that. It has six feet and is often found in marshy places and in the dung-hills. Another species of it is thin-bellied but not round. And the people call it ابوشحمة—and it is quite clear that it is the smaller (species of) حمارقبان. But the people of Yemen use this term for an insect which is larger than the locust and is one of the species of the butterfly (الفراش).

—شَحِيمَةَ; See under the last *kunya*.

ش ر ح —شُرَيحٍ; f. Shurayḥ: The فرج of a woman.

ش ع ب —الأَشْعَبِ; f. one who is wide between the shoulders: The hawk (البازي).

ش ع ث —الأَشْعَثِ; f. the dusty one: (1) The hawk. (2) The duck.

ش غ ل مَشْغُولٍ—; f. the busy one: The ant. So called probably from its being ever busy in work.

ش ف ي الشِّفَاءِ[1]—; f. health: Sugar. (R.)

ش ق ق الشِّقِّ—; f. the twins (lit. the counterpart of a thing): (1) The chamelion (Dmr.). (2) The donkey. (3) The crow.

ش ك ر شَاكِرٍ—; f. a thankful, grateful person: Sweetmeats, dessert (نُقْل).

ش م خ شَمَّاخٍ—; f. the proud (lit. of one who elevates his nose from pride): The cat. (Dmr.)

ش م ل شَمْلَةٍ—; f. a cloak, mantle, wrapper: The present world.

ش ه ي الشَّهِيِّ—; f. the pleasant, sweet one: (1) The musical pipe (بربط), or the Persian lute. (2) The water-melon (Golius). (3) The food known as حبيص (Ms.).

ش و ق الشَّائِقِ—; f. the lover: (1) A musical instrument. (2) A Song.

ش و ك الشَّوْكِ—; f. the thorns: The hedge-hog.

ش ء م الأَشْأَمِ—; f. one who has a mole upon his person: The eagle.

ش ي ع المُشَيِّعِ—; f. the escort: The leopard.

ش ي ن الأَشْيَانِ—; f. shīns (ش's): The tiger. اَشيان is the pl. of شين which is (i) one of the letters of the alphabet, and also signifies (ii) a man having patches

[1] Seybold's reading with ق (Ms., p. 127) does not seem to be correct.

in his garment (رِدَاع). The *kunya* may have been based on (i) the letter ش as indicating the sound produced from the friction of the tiger's sides as it moves through the reeds ; or (ii) the similarity of its body to a patched garment.

ص ب ر صابِر— ; f. the patient one : (1) The domestic ass. (2) The lark (القُبَّرة). (3) Salt. (4) A cooking-pot.

صَبْرَة— (and صَبِرَة) ; f. the urine and dung (of camels, etc.): A certain bird that has a red belly, and is black in the head, wings and tail (the rest of it being red) and is of the colour of aloes (صَبِر). Plural: بنات صَبْرَة.

صُبَيْرَة— ; Same as ابو صبرة above. Plural : صُبَيرات and بنات صبيرة.

ص ب ع الاصبَع— ; f. the finger : (1) The hawk. So named probably because it is a common practice to seat the pet hawks on the fore-finger or the thumb. (2) The vulture.

ص ح ر الصحارِي— ; f. the deserts : The male ostrich.

ص خ ب الصَخَب— ; f. clamour, noise: A musical instrument.

ص خ خ الصَخَّة— ; f. the sound (lit. the sound produced by the striking of stones against one another) : A musical pipe. (R.)

ص خ ر الصَخْر— ; f. the rock : The partridge.

ص د ق صادِق— ; f. the truthful : The viands carried home from a feast (لَزِمَا وَرْد).

ص ع ب الصَّعْب —; f. the hard, difficult one: The leopard.

ص ع ق الصَّواعِق —; f. the thunderbolts: The gerfalcon (الشاهين).

ص ع و الصَّعْو —; f. the bull-finch: The sparrow.

ص ف ر الأَصْفَر —; f. the yellow one: The food called الخبيص which is prepared from dates, clarified butter, or from starch and new wine.

ص ف و صَفْوان —; f. (smooth and broad) stones; (1) The camel. And as the father of clarity and coolness = (2) Milk. (R.) (3) An Abyssinian bird. (Ms.)

ص ق ر الصَّقْر —; f. the hawk: The mule.

ص ل ت الصَّلْت[1] —; f. the sharp and quick: The kite.

ص ل ح صالِح —; f. the upright one: The food called الثريد,

ص م ت صامِت —; f. the mute one: The tick (of camels).

ص م غ صَمْغَة —; f. the gum: One whose two eyes and nose flow with water and slaver just as a tree gives out its gum.

صَمْغان —; Same as ابو صمغة above.

ص ه ل صَهيل —; f. neighing: The hackney horse (لمرذون).

ص ي ح صَيْحَة —: f. a cry: The wolf.

ض ب ب ضَبَّة —; f. a lizard: The partridge.

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[1] So Dmr.; but Ms. reads it as الصلب.

ضُبَيْبَة — ; f. little lizard: A species of lizards of a small body.

ض ح ض — الضَّحْضاح — ; f. the abundant water: The frog.

ض ر ر — المَضَرِّي — ; f. the Madrahiyy: The falcon, hawk (لصقر).

ض ط ر — ضَوْطَرَى — ; f. a mean and fat person: (1) A foolish person. It is used as a term of reviling and abuse. (2) Hunger.

ض م ر — ضَمارَة — ; f. concealment: A bat.

المِضْمار — ; f. the race-course: The horse.

ض ي ف — لَاضياف — ; f. the guests: The very hospitable person; the master of the house in which some banquet is held.[1] Says Dhur-Rummah:—

فنعم ابو الاضياف ينتجعونه * و موضع انقاض اذ نهو ضها[2]

ظ ي م — الضَّيْم — ; f. oppression, injustice: The lion.

ط ف ر — طافِر — ; f. one who leaps: The flea.

ط ف س — الطَّفْس — ; f. filth, dirt: The bat.

ط ف ل — الطِّفْل — ; f. the child: The panther.

ط ل ب — اَطْلاب — ; f. desires, wishes: A lover. (R.)

طالِب — ; f. a seeker: The horse. It is so called because it helps one in attaining one's aims and objects.[3]

ط ل ح — طَلْحَة — ; f. Ṭalḥa[4]: The ring-dove.

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[1] Ms., who adds that this is an appellation of the Patriarch Abraham.

[2] DR., XLIII, 22.

[3] Ms.

ط م ر طامِر—; f. the leaper, jumper: The flea.

ط م ن طامُون—; f. Ṭāmūn: A kind of medicine, otherwise known as قفر اليهود.[1]

ط ه ر طاهِر—; f. the pure, clean one: A kerchief.

ط و ق طاقَة—; f. the window: A coin with the imprint of a colonnade.[2] Cf. ابو مدفع.

ط و ل الطَويل—; f. the long, tall one: An aquatic bird, otherwise known as مالك الحزين.

ط ي ب الطِيب—; f. perfume: (1) A druggist. (R.) (2) The food called حَبيص (3) Sweetmeat (الحَلْواء).

ع ب ب المُطَيِّب—; f. the spices: Common Salt.

العُباب—; f. the wave: (1) Water. (2) The First Chapter of the Koran. (R.)

ع ب د مَعبَد—; f. worship, adoration: The frog. So called perhaps from its croaking, that may be regarded as a constant and unceasing glorification of God.

مُعَبَّد—; f. the enslaved one: (1) A mean fellow. (2) A nail.

عُبّاد—; f. worshippers: The hoopoe bird.

ع ب س العَبّاس—; f. ʿAbbās: (1) The elephant of Abraha, the Abyssinian general, who raided the Kaʿba in the Year of the Elephant.[3] (2) The lion; so called from his frowning face (Ms.).

ع ت ب عَتَبَة—; f. threshold: The hog.

عتّاب—; f. ʿAttāb: The crow.

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[1] Burhān.
[2] Ency. Isl., Art. Abu Ṭaka.
[3] Dmr. on the authority of Rabīʿul-'Abrār.

م ث ع عُثْمَانَ— ; f. the young serpent: The serpent.

م ج ع العَجَبِ— f. the wonderful, or curious: (1) One who does strange, curious, wonderful deeds. H. says :—

فاصبرْ اذا ماناب رَو — عٌ فالزمان ابوالعجبْ

(When fear afflicts you be patient, for Time does wonderful things.[1]) (2) Fate (القضاء). (3) Remorse (ندامة). (4) Evil. (5) Falsehood.

ع ج ل عِجْلِ— ; f. a calf : (1) The ox. Says al-Hudhallī :—

[2] أوابِدُ لاآلوك الّا مهنّدا — وجِلْدَ ابي عجل وَثيقَ القَبائل

(2) The constellation known as Aldeberan (الدبران)—so called because it is the central star in Taurus (قلب الثور), as in the utterance of a poet :—

وارقني تغريداقمرَ مُشرق — حداهُ مع الاصباح قلب ابي العجل

ع د ر ج العَدَرَّجِ— ; f. the light and swift : The mouse.

ع د ي عَدِيّ— ; f. assaulters (عدى as the pl. of عادٍ): The flea.

ع ذ ر عُذْرِ— ; f. (and عُذْرَة) : f. virginity : They say هوابوعذرها (and عذرتها) : He is the person who devirginated her. Likewise is the idiom هوابوعذرهذا الكلام: He is the first utterer of this speech. When a man offers an explanation of something from some borrowed source they say to him

[1] Maq., XIX.
[2] Ms., p. 149.

ما انت بامي هذه *i.e.*, you are not the first utterer of this, but some one has already done so before you (قد سبقت اليه).[1] H. has ذهب ظني اولا : My mind has discovered this first.[2]

ع ر ز — عَرَزَة ; f. small heather : The rabbit ; so called because of its liking for heather. Another form is with the pointed غ[3]

ع ر س — العَرِيسَة ; f. the lair : The lion.

ع ر ض — العَرِيض ; f. the large, broad one : The male ostrich.

ع ر ف — العَرِيف ; f. the manager (or superintendent) of affairs : The lion.

ع ر ق — العَرَق ; f. moisture, perspiration : The bath (الحمّام).

ع ر م ض — العَرْمَض ; f. the moss : The buffalo. Note that the moss is also called عَرْمُ الماء

ع ر ن — العَرِين ; f. the lair : The lion. Cf. ابو لعريسة

ع ر ي — عُرْيان ; f. the naked one : The Numidian crane (الكركي).

ع ز ر — العَيْزار ; f. the 'Ayzār tree : The bird known as سَبَيْطَر It has a very (جدّا) long neck, and is always (ابدًا) seen in shallow water (الماء الضحضاح). The author of the Muḥkam thinks it is the Numidian crane (كركي), and R. renders it as a heron.

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[1] M. from IS. They also say في منر for ابي منر in this expression.

[2] The Preface to his Maqs.

[3] Ms., p. 151.

ع س ل عَسْلَة — ; f. the wolf : The wolf. It is also read with غ[1] instead of the unpointed ع.

ع ص م عاصِم — ; f. the defender : (1) The food called سَوِيق which is prepared from parched barley (شعير) moistened with water or butter or fat of a sheep's tail. (2) The food called سكباج prepared from flesh-meat, wheat-flour and vinegar, to which are afterwards added some raisins, a few figs, and some vetches. (3) The hornet (الزُّنبُور).

ع ص ي لعاصِي — ; f. the sinner : The serpent. The *kunya* seems to have been based upon the Jewish mythological idea of the part which the serpent played in the fall of Adam.

ع ط ف عاطِف — ; f. the sympathetic one : A measure for measuring grains and dates.

عطاف — ; f. favourable disposition : The dog ; so called because it is so kindly disposed towards its friends (اصحاب). Says al-'Ajjāj :—

اذ اكلب كالاسهم النجاف * يشاي عطافا او ابا عطاف

ع ط ل س العَطَلّس — ; f. the long one : The wolf. (Dmr.)

ع ق ب عُقبَة — ; f. 'Uqba' : (1) The cock. (2) The male among the lice ; or, a big louse. (3) The hog as in H., Maq. XLIX.

يَعقُوب — ; f. the partridge : The sparrow.

ع ق ر العَقّار — ; f. the great slaughterer : The leopard.

ع ك ر م عكْرِمَة — ; f. the female pigeon : The pigeon.

ع ل ب عُلْبَة — ; f. a bowl : The hog.

[1] Ms., p. 151.

ع ل س

عَلْس— ; f. 'Als : A species of violet. (R.), or the hollyhock,—the one called خَيرَى of which there are many different shades of colour, as violet, red, yellow, black and white.[1] Taj. notes عَلْسِيّ which he explains as a herb, the blossom of which is like that of the lily (سُوسن) and is of a green colour.

ع ل ل

المُعَلِّل— ; f. the repeatedly drinking one : The violin (الرباب).

ع ل و

يَعلَى— ; f. Ya'lā : The young cock, just approaching the time of its maturity ; otherwise known as شامُرك (Arabicised from the Persian شاه مُرغ)

العَلاء— ; f. glory : The food called فالوذَج (Pers. فالوده and پالوده) which is a kind of beverage prepared from starch, honey and water. H. uses the *kunya* in his Maq. XIX.

عِلْيَة— ; f. the lofty ones : The hog. (Dmr.)

ع م ر

العُمر— ; f. life (or age) : The vulture. (R.)

عُمرة— ; f. growth : Hunger, penury, indigence. A certain اعرابي when asked if he could recognise ابوعمرة, said, "How could I not recognise him, since he is sitting squat (متربع) in my liver (or stomach)."[2]

عامِر— ; f. the living : (1) The male hyena. (2) The dog ; so called because he inhabits his master's house by keeping watch over it.[3] Vinegar. (4) The lamb (الخروف).

[1] So in Burhān.

[2] M. from Abul-'Abbās.

[3] Ms.

عمر — ; f. ʿAmr.: (1) The leopard. (2) The hawk. (3) Poverty, indigence.

عُمَيْر — ; f. ʿUmayr: The penis.

عِمْران — ; f. a flourishing house (or land): The hawk. (2) The male ring-dove (الور شان).

ع م ل س العَمَلَس — ; f. the wolf (lit. strong and quick-paced one): The wolf.

ع م م العَمامَة — ; f. the turban: One who has a large head, and, therefore, wears a large turban(Z). Cf. ابوالراس.

ع ن و العَنا — ; f. difficulty: The shin-bones, tibia (الاكارع).

ع و ف عَوْف — ; f. the عوف plants: (1) The male locust.[1] Cf. ام عوف. (2) The lion. (3) The crocodile. (4) The penis.

مُعافا — ; f. Muʿāfā: The vinegar-sauce (الكامخ).

ع و ل عَوْيِل — ; f. lamentation, wailing: (According to Quṭrub it signifies) the fox.

ع و م العَوّام — ; f. the skilful swimmer: The fish.

ع و ن عَوْن — ; f. help, aid: (1) The common salt. So called because it helps us in eating our food; as in H., Maq., XIX. (2) The dates.

ع و ي عَوان — ; f. the middle-aged one: The hawk.

مُعاوِية — ; f. Muʿāwiya: The jackal.

ع ي ض عِياض — ; f. ʿIyāḍ: (1) The crab. (2) The sparrow-hawk.

[1] Ms. (p. 152) applies this sense to ابوعويف. See ام عويف.

ع ي ل عَيَّالٍ—; f. a family: The hunter.

ع ي ن عَيناء[1]—; f. one having large eyes: The Numidian crane.

غ ب س غَبْسان—; f. one having a yellowish red colour: The wolf.

غ ر ز غَرْزة—; Another form of ابوعرزة q. v.

غ ر ف الغَرّاف—; f. the (river full of) water: The jug (الابريق).

الغَرِيف—; f. the thicket: The lion.

غ ز و غَزْوان—; f. the warrior: (1) The cat; so called because it is at war with the mouse. H. commemorates its meekness in Maq. XLIX. (2) The viper.

غ ص ل غَسْلة—; Same as ابو غسلة q. v.

غَيسَلة—; f. Ghaysala: The wolf. See غسلة above.

غ ض ب الغَضَب—; f. anger: The leopard.

غ ط س الغَطاس—; f. a dip, immersion: The wolf.[2]

غ ف ل غافِل—; f. the negligent: A certain measure in vogue in Yemen, and otherwise called ذَهبان

غ م ر غَمْرة—; f. distress: Hunger, penury. Cf. ابوغمرة

غ ي ث غِياث—; f. help: (1) Water. (2) The crow.

غ ي ر الغَيران—; Ghayrān: The Numidian crane.[3]

غ ي ض غائِض—; f. a small quantity of water: The frog.

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[1] Ms. (p. 152) reads it with ال

[2] Ms. (p. 165) quotes its other form with ف in place of the pointed غ, but says he has not investigated it (لم اتحققه).

[3] This is possibly a mistranscription (by Ms., p 165) of ابوالعيزار

ف ت ح الفَتْح—; f. an opening, income: The sale, selling (الشراء)

ف ت ك فاتِك—; f. a felon, murderer: Mustard, charlock.

ف ر س فِرِاس—(and فَرّاس); f. a lion: The lion. So called because it breaks the neck of its prey, from فَرَسَ يفرس to break the neck.

ف ر ق الفِراق—; f. parting; The jug (الابريق).

الفَرْقَد—; f. a young calf: The wild ox.

ف ر و فَرْوة—; f. the skin: The chestnut tree; so called because within its husk is what resembles the soft hair of camels.

ف ص ع ل فُصْعُل—; f. Fus'ul (or Fis'il): The scorpion.

ف ض ل الفَضْل—; f. excellence: The coin called Dīnār.

الفُضُول—; f. the excessive: An impatient person, one who interferes in any and every thing.

المُفَضَّل—; f. the excellent one: The panther.

ق ت د قَتادَة—; f. the thorn: The bear. So called from its hard and tough hair, or from its haunt among thorny thickets.

ق ت ر قَتْرة—; f. the lurking-place: Satan, the Devil.

ق ت ل مُقاتِل—; f. a fighter: Slaughter; oppression.

ق د م قادِم—; f. the first, or the main part: (1) The hog. (2) The chamelion.

ق ر ر قُرَّة—; f. coolness: The chamelion. H. notes it for its firmness and resolution.[1]

[1] Maq. XLIX.

ق ز ر قَزْران—; f. Qazrān: The fish known as الحَجَري

ق س م القاسِم—; f. the distributor[1]: Same as ابو الفضول q. v.

ق ش ش قُشَّة—; f. a young monkey[2]: The monkey.

ق ش ع م قَشْعَم—; f. the old one: (1) The spider. (2) The vulture.

ق ص ص مَقَصّ—; f. the مقص (*i.e.*, the part of the head where the growth of the hair terminates): An earring.[3] So called probably from the near proximity of its position to the مقص in the neck.

ق ض ع قُضاعَة—; f. Quḍā'a[t]: The mule.

ق ض ي القاضي—; f. the judge: The serpent; so called because it passes (a final) judgment against one it stings.[4]

ق ط و القَطاة—; f. the Qaṭā bird: The bird known as كُدْري. According to Ibn al-'A'rābī[5] it is a species of the Qata bird, of a dusty colour (اغبر اللون), having small feet and a multicoloured back, and with two hair in its tail that outstrip the rest of the tail.

ق ع ق ع القَعْقاع—; f. Qa'qā': The crow, raven. The word قَعْقَم also signifies a crow or raven.

ق ل ب قَلِيبَة—; f. a ditch: The leopard.

ق ل م قَلَمُون—; f. Qalamūn: A kind of Roman (or Greek رومي) cloth which changes its colour. Used proverbially of a capricious and fickle-minded

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[1] Burhān.
[2] Ms., p. 170.
[3] Hava, Al-Farā'idud-Durriyya, u. قص.
[4] Ms., p. 175.
[5] Taj, u. كدر

person : for they say أغبر من ابي قلمون More changing than ابو قلمون.

ق م ص قَمُوصٍ—; f. a restless, unquiet (beast of carriage) : The mule.

ق ن ر القَنَّوْرِ—; f. Qanawwar : The penis. Says a poet :—

لاعيش والله ابالقنور * اريلتقي اشفارها واشعري [1]

ق ن س قانِيسَ—; f. Qānīs: A certain herb used in dyeing. (R.)

ق ي د القِيدِ—; f. a measure: A bowl, cup.

ق ي ر قِيرٍ—; f. tar, pitch : A well-known bird.[2]

ق ي س قِيسٍ—; f. the measure: (1) A measure; a certain small measure, otherwise known as القَنقَل [3] (2) The ape. (3) The jackal.

ق ي ض مَقَاضٍ—; f. the place of keeping eggs : The hatching places and pits of the ostrich and the sand-grouse (قطا).

ك ب ر كِبٌ—; f. greatness : The coin called Dirham.

كَبِيرٍ [4]—; f. a great one: The sparrow-hawk (الصرد).

ك ث ر كَثِيرٍ—; f. the abundant, numerous: A certain bird, which is larger than a sparrow, and hunts sparrows. This is what Naḍr b. Shumayl says about it. And it is spotted (ابقع), has a large head, and lives in trees. One-half of it is

[1] Ms , p. 175.

[2] Dmr. ; and Ms., p. 175.

[3] Ms., p. 176.

[4] As pointed out by Seybold (Ms., p. 186) this is probably the same as is noted by Dmr. as ابو كثير.

white, and the other black. It has a compact beak and a large claw. It is not seen except on tall date-palms (سعفة) or on trees where no one may approach it. It is unsociable (شرس) and shuns company. It eats flesh, and has different voices, and produces the notes of any bird which it wishes to hunt, so that when the birds gather round it, it attacks some of them with its strong beak. This is invariably its habit. Its haunts are among the trees and the heights of fortresses (الحصون والقلاع).[1]

ك د م — كِدام —; f. Kidām: The wild ass (العَير).

ك ر س — الكَرَوَّس —; f. Karawwas: The Devil.

ك س ب — كاسِب —; f. a dog: The wolf.

ك ع ب — كَعْب —; f. the ankle-bone, or the tarsal joint: (1) The jackal. (2) The mule.

ك ل ب — كَلْب —; f. the dog: A Dutch coin current in Egypt, etc., something inferior in value to a Spanish Piastre (= £ 0-4-6). It bears the impression of a lion which, however, the Arabians have changed to a dog (كلب) (R.). En. Isl. calls it the Dutch ducat.

ك ل ث م — كُلْثُوم —; f. an elephant (or, of one having plenty of flesh on the face and the cheeks): The elephant. (Dmr.)

ك ل د — كَلْدَة —; f. the rugged, hilly tract of land: The male hyena.

ك م ل — الكَمال —; f. the perfection (or, of compliments—R.): A drinker of healths. (R.)

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[1] Dmr. u. الصرد.

كامِلٍ—; f. the perfect one: (1) The basin (الطست). (2) The calf, colt.[1]

ل ب د لُبَدٍ—; f. the hair: The lion. لِبَد is the pl. of لِبْدَة which signifies the compact mass of hair between the shoulder-blades of the lion. It is read لُبَد as well.[2]

ل ح ق لاحِقٍ—; f. a follower: The hawk. (S.)

ل ذ ذ اللَّذَّة—; f. good taste: A roast-meat (الشواء).

ل ط ف اللَّطِيف—; f. the delicate one: The parrot (الببغاء).

ل ع ن مَلْعُونٍ—; f. the accursed: The mule.

ل م س اللَّمّاسِ—; f. the kissing: The bear.

ل ه و لَهْوٍ[3]—; f. a pastime: A drum, a lute (الطنبور).

ل ي ث لَيْثٍ—; f. a lion: The lion.

ل ي ل لَيْلَى—; f. the dark one: (1) A foolish person, a fool, an idiot. (2) The Devil.

م ذ ق مَذْقَةٍ—; f. the adulterated milk: The wolf. So called because its colour resembles that of the adulterated milk. (Taj.)

م ر ء المَرْءَة—; f. the woman: The husband. (R.)

م ر ر المُرِّ—; f. the bitter: The crow. (Dmr.)

مُرَّة—; f. Murra[t]: The Devil. Murra[t] is supposed to be the name of the Devil's daughter.

م ر م مَرْيَم—; f. Mary: The assistant of a qāḍī. See H., Maq. IX.

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[1] Ms., p. 186 (الحمل).
[2] F. and Ms.
[3] Ms. reads it with ال.

م ز ن مُزْنَة—; f. rain: (1) The cloud. (2) The crescent moon.

مُزَيْنَة—; f. Muzayna[t]: A kind of fish in human form. According to Al-Qazwīnī they are found in Alexandria, have a sticky skin, and bodies that resemble each other. They can cry and bemoan, so that when they come out of the sea and walk on the land and fall a prey into the hands of hunters they begin to cry, and the hunters take pity on them and let them go. (Dmr.)

م ض ي مَضَاء—; f. penetration, accomplishment: The horse; so called on account of its great speed in running. With ال it means a date (الرطب).[1]

م ع ط مُعْطَة—; f. a hairless wolf: The wolf.

م ل ح المَلِيح—; f. the pretty one: (1) The hawk. (2) The lark, or the nightingale. (3) A certain bird, which is a little larger than the ordinary sparrow, otherwise known as صِفْرِد. (4) The partridge (القبج).

م ل ك مالِك—; f. the master: (1) The vulture. (2) Extreme old age. (3) Hunger. (4) The basin. (5) Penury, pennilessness. (6) The male goat.

م ن ن المِنَن—; f. boons, favours: The soup of a broth.

م ن ي المُنَى—; f. desires, longings: A prophet or missionary, who preaches his mission to the people.

ن ب ه نَبْهان—; f. the wary, cautious: (1) The cock. (2) The fox. (3) The rabbit.

ن ج ب نِجاب—; f. a thin cloud: The pigeon.

[1] Ms, p. 198.

ن ج ح ناجِح—; f. the successful, prosperous: The coin Dirham.

ن ج ع ناجِع—; f. a seeker (of herbage and food): Confection; sweetmeats.

ن ج ل مِنْجَل—; f. a scythe, reaping-hook: A certain aquatic bird having a long beak like a scythe.

ن ج م النَجْم—; f. the star: The fox.

ن ج ي المُنْجِي—; f. the rescuer, saviour: The horse. (Dmr.)

ن ح س النَحْس—; f. the inauspicious: (1) The lion. (2) The lance.

النُذْر—; f. warning, admonition: Violent wind (صَرصَر).

ن ذ ر المُنْذِر—; f. the terrifier: The cock. H. has: هتف ابو المنذر بالنُوّام: The cock called upon the sleepers.[1]

النَذِير—; f. the terrifier: The cock.

ن ز ل المَنْزِل—; f. the abode: The master of the house, the host. When they say فلانٌ ابو منزلي they mean: I was a guest of so and so.

ن ز ه النَزاهَة—; f. wholesomeness: A garden.

ن ش ط ناشِط—; f. the cheerful one: Song, singing, melody.

النِشاط—; f. cheer, happiness: The beginning, exordium (الفاتحة).

ن ص ر النَصْر—; f. help: The myrtle, basil (الريحان).

[1] Maq. XLVIII.

مَنصُور—; f. the victorious, or defence: A city. (R.)

ن ظ ر نَظَّارَة—; f. a scene: A wearer of spectacles.

ن ظ ف النَظِيف—; f. the clean, pure one: The bath (الحمّام). (1) The towel, napkin (المنديل).

ن ع م نُعَيم—; f. Nu'aym: (1) The Numidian crane. (2) The bread called لخبزالحوّاري.[2] H. speaks of it in Maq. XIX.

نُعمَان—; f. Nu'mān: The quail (السُماني).

ن ف ل نَوفَل—; f. the jackal: The fox.

ن ق ذ مُنقِذ—; f. a rescuer: The horse. So called because it saves its rider from perilous places and from perishing. Cf. ابوالمنجي.

ن ق ي النَقِيّ—; f. the pure one: Alkali, potash (الاشنان).

ن م ل نُمَيلَة—; f. the little ant: The male of the animal known as the عناق الارض which is described[3] as a hunting creature which is also known as التفه and الغنجل[4] and is said to be smaller than a panther (فهد), with a long back. According to Al-'Azharī[5] it is above the الكلب الصيني and it hunts like a panther, and eats flesh, for it is one of the wild beasts. According to F. it is known in Persian as سیاه گوش.[6]

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[1] Hue. u. Abu.

[2] Ms., p. 214.

[3] Taj. u. عنق.

[4] Dmr. notes it as الفنجل u. التفه which he describes as a wild beast resembling a panther and of the size of a small dog.

[5] Taj. u. عنق.

[6] Explained by R. as an animal of the tiger species with which they hunt deer.

ن و ح النائحة—; f. the bewailing (woman): The male ring-dove.

ن و ر الأنوار—; f. the lights: The cooking-pot.

النار—; f. fire: The upper one of the two firesticks; while the lower one is called the أمّ النار. Says Dhur-Rumma[1]:—

وسقط كعين الديك نازعت صاحبي * اباها وهيّا نا لهو ضعها وكرا
مشهرة لا تمكن الفصل امّها * اذا هي لم تمسك باطرافها قسرا

And another poet says:—

ومنتوجة من غير حمل كأنّنا * تركنا اباها لم تُرد امّها بعلا

ن و م النوم—; f. the sleep: (1) The poppy. (2) A cup, bowl.

ن ه ر النهار—; f. the young bustard: The bustard.

ن ه ل المنهال—; f. the grave: The vulture. So called because of its association with the graves and corpses.

ه ب ر هبيرة—; f. a little shell: The frog.

هوبر—; f. Hawbar: The panther. هوبر signifies a monkey (القرد) with abundant hair.[2]

ه ث م الهيثم—; f. the young eagle (or vulture): (1) The eagle. (2) The cat.

ه ج ر س الهجرس—; f. the fox: The fox. هجرس (pl. هجارس) signifies a fox, a monkey, and is applied to whatever roams about stealthily at night (يعسعس بالليل).

ه ج م هاجم—; f. the assailer, intruder: The winter.

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[1] Ms., p. 213.
[2] Ms., p. 231.

ه د ل —هُدَيل; f. a young pigeon: The pigeon.

ه د ي —مُهْدِيّ; f. the guided one: The pigeon.

ه ر ن —هارُون; f. Aaron: A certain bird which produces plaintive notes that excel the bewailing women and singers. It does not remain quiet in the night and cries on up to the next morning, when birds flock to listen to its sweet songs. Often it happens that a lover passes by it, and not being able to go on he sits down and joins it in its plaintive songs (Dmr.)

ه ش م —هاشِم; f. Hāshim: The black beetle. (2) A well. (3) The wild beasts. (4) Hatred. (R.)

—هِشام; f. Hishām: The soup (لطَفْشِيل).[1]

ه ص م —الهَيصَم; f. the lion: (1) The lion. (2) The Numidian crane.

ه ن ء —المُهَنَّأ; f. the auspicious: A drink, wine.[2]

—الهَنِيء; f. the pleasant one: The napkin, towel (المنديل).

ه ن ب د —الهِنبِر; f. the young hyena: The male hyena.

ه ن د —هُنَيدَة; f. Hunayda': The stork, the Numidian crane.

ه و ل —الهَوْل; f. Terror: The Sphinx of Jizah.[3]

و ث ب —الوَثّاب; f. the great leaper: (1) The weasel (ابن عرس). (2) The fox. (3) The flea. (4) The serpent. (5) The gazelle.

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[1] Taj. has الطَّفْشِيل and الطَّفْشَل—a kind of soup (مرق).

[2] R. But I think الشراب (as in Ms., p. 199) should better be rendered as a drink than as wine.

[3] Encycl. Isl., Art. Abu'l-Hawl.

و ج ر —وَجْرَة; f. the pitfall : The black beetle[1] (جُعَل).

و ح د —الوَحِيد; f. the solitary one : Grief, sorrow (قلق).

و ح ى —الوَحا; f. the voice (?) : (1) The sword. (2) The head (الراس المشوي)

و ر د —الوَرْد; f. the rose : The penis. So called because of its redness. (Taj.)

و ر ي —الوَرَى; f. the creatures : Time. See H., Maq. VII.

و س ع —الواسِع; f. the wide one : The food called ثريد.

و ش ي —الوَشْي; f. the coloured (design, embroidery, etc.) : (1) The pea-cock. (2) The leopard.

و ض ء —الوَضاء; f. the lighted one : A lamp.

—الوَضِيء; Same as ابوالوضاء.

و ط ء —الوَطْئ; f. trampling, treading : The socks.

و ل د —الوَلِيد; f. the child : The lion.

—المِيلاد; f. the birth-place (or, time) : The swallow.

و ي ل —وائِل; f. Wā'il (mourner) : The jackal. So called from its plaintive cries.

ي ت م —اليَتامَى; f. the orphans : One who looks after them tenderly and helps them.

ي س ع —اليَسَع; f. Elisha : The gnat, the mosquito.

ي س ف —يُوسُف; f. Joseph : A certain bird.

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[1] Seybold (Ms., p. 226) quotes Suyuṭī's Al-Munā fil-kunā to say ابو وجرة هوالعجل (and not جُعل).

يستعور —; f. Yasta'ūr: Calamity, misfortune. They say يستعور is the name of the genii.[1]

ي ق ظ يقظان —; f. the wakeful: (1) The cock. (2) The serpent.[2]

ي م ن ميمون —; f. the auspicious one: Honey.

ي ه م يهميا —; f. Yahmiyā: Paralysis.[3]

II. أمّ

ء ث م أمّ الآثام —; Mother of sins: Wine. Cf. ام الخبائث

ء ح د إحدي وعشرين —; m. twenty-one: The domestic hen. There is a proverb أعطف من ام احدي و عشرين: More kindly disposed than a hen; because she hatches (تحضن) all her chicks and feeds (تزقّ) all of them, and if even a single one of them dies her grief becomes quite patently clear.[4]

ء د م آدم —; m. man (or Adam): The earth. Says a poet:—

ولمّا نبت ارض بنا وتنكرت * نبونا وقلنا امرضى ام آدما[5]

ء د ب أدبي —; m. calamity: Calamity, misfortune.

ء ر خ أرخ —; m. a (young and wild) cow: The cow. IM. quotes from Al-Bāhilī the utterance of some Medinite poet:

ليت لي في الخميس خمسين عينا * كلّها حول مسجد الأعياص

مسجد لا تزال تهوي اليه * ام ارخ قنامها متراخي

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[1] Ms., p 235.
[2] According to Ms. (p. 235) this is the signification of the *kunya* with ال (ابو اليقظان) only.
[3] Burhan.
[4] Mdn. u. this proverb.
[5] Ms., p. 13.

The mention of the scarf (قناع) in these lines shows that by the kunya as here used the poet means a beautiful young damsel, a simile, so common among the Arabic poets of both the pre-Islamic and Islamic periods.

ء ر ض الأَرْض—; m. the earth: The beetle (جعل), which rolls up dung with its head.

ء ر ق أُرَيق—; m. 'Urayq: Calamity, misfortune.

ب ر ح بِرِيح—; m. the croaking of a crow: The crow. This is how Jahr. interprets it: as synonymous with ابن بريح q. v. But Ibn Barrī and Abu Zakariyyā think that in this sense only ابن بريح is correct,[1] for the pl. is بنات بريح which can properly be the pl. of ابن (and بنت) and not of أُمّ.

ب ن و بَنِين—; m. sons: The quiver, as if the arrows are its sons.[2]

ب و و البَوّ—; m. a بو (*i.e.*, a skin of a young unweaned camel stuffed with straw, which is brought near a she-camel that has lost her young one, to make her yield her milk at milking time): The she-camel.

ب ي ت البَيْت—; m. the house: The wife, landlady. (M.)

ب ي ض البَيْض—; m. the egg: The (female) ostrich. Says the poet Abu Du'ād:—

واتانا يسعى تقرشف ام البيض شداً وقد تعالى النهار

(He came to us running, like the ostrich when it opens its wings to run, when the sun had gone high.)

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[1] Taj.

[2] Ms., p. 38.

بَيْضاءُ—; m. the white one: The cooking-pot. So called contrarily, as a satire.

ت س ع تِسْعِينَ—; m. the ninety: (1) The she-ass (IM.). (2) The date-palm. (Taj.) (3) The posteriors, anus (الاست). According to some it is (4) a quiver containing ninety arrows.[1]

ت ف ل تَفَلٍ—; m. spittle, saliva: The hyena.

ت ل ب تَوْلَبٌ—; m. a young ass: The she-ass, the female of the domestic ass.

ت ن ف التَنائِف—; m. the deserts: A remote and extensive desert in which there is no water or herbage, nor any trace of human beings; the hardest and the most difficult desert to traverse.

ت و ب تَوْبَةٌ—; m. return (or repentance): The ant.

ت و م تُومَةٌ—; m. a pearl: (1) The pearl-shell, mother-opearl. (2) An ostrich's egg. توم is the word used for the eggs of the ostrich. They are likened to pearls probably on account of their whiteness.

تُومٌ—; The snakes of the Tinnīs Island.[2]

ث ء د ثَأْدٌ—; m. a foul action (or, of a damp place,—Cf. ام المَلِيل[1]): A calamity, misfortune (الداهية). I do not find any other authority for this *kunya* except M. It may be a mistranscription of ام ثَآد q.v.

ب ر د الأَبْرَدُ—; m. the black and white: The female leopard. From ثوب أبرد which is applied to a cloth in black and white threads which shine.[3] Hence

[1] Ms., p. 51.
[2] Ms., p. 51. Tinnīs is described by Yāqūt (Mu'jamal-Buldān, ed. Wüstenfeld, I, 882) as an island situated between الفرما and دمياط in بحر مصر
[3] Ms., p. 12.

a leopard, which is spotted with black and white spots.

ب ر ر — بَرَّة ; m. obedience : The sheep (نعجة).

ب ر ك — بَرَكَة ; m. blessings, bliss : The mare (لرمكة).

ب ش ر — بِشْر ; m. cheerfulness : The cauliflower (القُنَّبيط).

ب ط ل — الباطِل ; m. the false, wrong, unfounded : (Anything that is) false, wrong, etc. They say ما انتَ و ام‌الباطل ؟ *i.e.*, what do you mean by this nonsense? (IM.)

ب ع ث ر — بُعثُر ; m. digging, excavating : The hyena.

ب ك ر — بِكْر ; m. a virgin : A woman who produces only one child (التي ولدت بطنا واحداً).[1]

ب ل د — البِلاد ; m. towns ; cities : An epithet applied to the most well-known town in a locality or province (or country), a metropolis ; *e.g.*, Baghdad is the ام‌البلاد of Iraq, and Damascus that of Syria (الشام).

ب ل ق — البُلَق ; m. Bulayq : Calamity, misfortune. Its other form is ام‌المليق.

ب ل ل — البِلِيل ; m. the moist one : (1) A calamity ; scourge. (2) Death. Says Hāni' b. Mas'ūd :—

[2] انّ كِسرَى عَدا على‌الملك‌النعمان حتى سقاهُ ام‌البليل

ث ف ل — ثِفْل ; m. a sediment : The (female) hyena.

ث ل ث — ثَلاث ; m. three : The female of the sand-grouse (قطا) (Dmr.).

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[1] Ms., p. 36.

[2] Ms., p. 37.

ثَلَاثِينَ—; m. thirty: (1) The female ostrich. (2) A quiver containing thirty arrows. Says a poet:—

لا مال الّا العطاف تُوزرهُ * ام ثلاثين وابنة الجبل [1]

ث ن ي

الْمُثَنِّي—; m. the double one: The she-ass.

ث و ي

الْمَثْوِي—; m. the abode (or lodging): The wife, the lady of the house, to whom one betakes (ياوِي اليها) for lodging and comfort. The mistress of the house, who entertains the guests (تُضيف); the hostess. They say ام مثوي الرجُل, *i.e.*, one's wife, the mistress of one's house. They say مَن ام مثواك ؟: Who is the mistress of your house, your hostess? Cf. ام البيت and ام المنزل.

ج ء ل

جَيْئَل—; m. Jay'al: The hyena.

ج ب ر

جابِر—; m. the repairer (sustainer): (1) The bread. Also called ابن حبة (جابِر) q.v. (2) The ear of corn. (3) The food known as الهَرِيسَة which consists of grain or wheat bruised, brayed and then cooked.

ج ب ل

الجَبَل—; m. the mountain: Calamity, misfortune.

ج ب ن

جَبِين—; m. the forehead: The chamelion.

ج ث ل

الجَثَل—; m. the bushy, tangled one: (1) The black ant. (2) The present world.

ج ح ش

جَحْش—; m. a young ass: The she-ass.

ج خ د ب

جُحادِب—; Same as ابو جحادب q. v.

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[1] Ms., p. 55.

ج ذ ع — الجَذَعِ ; m. the time: Calamity, misfortune, adversity. الأزلم الجَذَع is the epithet of Time (الدهر).[1]

ج ر ذ — جِرذان ; m. the (large) field rats: Taj. and IM. interpret it as a date-palm (النخلة). But Ibn 'Athīr calls it a sort of a date of large size, which is so called because the field rats collect under "the palm of these dates."[2] They rise in the last part of the hot season when the moon is in the eleventh mansion (خَرَاتان), and therefore the saying اذا طلعت الخراتان اكلت ام جرذان, *i.e.*, the ام جرذان dates are eaten when the Kharātān rises.

ج ر ف — الجَرّافِ ; m. al-Jarrāf: (1) A bucket. (2) A shield.

The word جَرّاف may be regarded in this *kunya* to be synonymous with جُراف which signifies (i) a torrent of water that sweeps away everything (يذهب بكل شيء), and hence this epithet for the bucket; (ii) a great eater, a glutton who does not leave anything before him (شديد الاكل لا يبقي شيئاً) and hence the shield designated as ام الجراف for it eats away, so to say, all the strokes that fall on it.

ج ر ي — جَوارٍ ; m. girls: The eagle. Says al-Mukhabbal al-Sa'di[3]:—

وكأنها لما عنت سَرَوِيَّةٌ * مسعورةٌ باللحم ام جوار

ج س د — الأجساد ; m. the bodies: Quicksilver. (R.)

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[1] Ms., p. 61.
[2] Nihaya, u. جرذ.
[3] Ms., p. 63.

ج ع ر جَعارٍ—; m. the she-hyena: The female hyena. So is also ام جعور. So called on account of the abundance and excess of its dung (جَعَرٌ).

جُعْرانٍ—; m. Ji'rān: The bird known as رَخَمَة *i.e.*, a female vulture, the female of *vultur percnopterus*, otherwise known as العَجُوز (the matron).[1]

جَعَرٍ—; m. dung, excreta: The anus.

جِعْرانَةٍ—; m. Same as ام جعران above.

جُعْرُورٍ—; m. the جعرور dates: The plant of the جعرور dates, that are the worst of their kind.

جَعُورٍ[2]—; Same as ام جعار above.

ج ع ف ر جَعْفَرٍ—; m. Ja'far: The (domestic) hen.

ج ل س جَلْسٍ—; m. a hard ground: The hyena.

ج ل ب ق الجَلَوْبَقِ—; m. calamity: Calamity, misfortune. This is also used as a term of vituperation against women; as in Jarīr's utterance[3]:—

لقد ولدتْ امّ الجلوبق نَفْثَةً * تَرِي بَيْنَ رِجْلَيها مناحِيَ اربعا

ج م ع جامِعٍ—; m. a uniting one: A boat (السفينة).

ج م ج م الجَماجِم—; m. the skulls: The skin of the head; or its highest, uppermost part.

ج ن د ب جُنْدُبٍ—; m. a locust: (1) Calamity, misfortune. (2) Wrong, oppression, injury. They say وقعوا فى ام جندب (or.....وقع القوم في): They (or the people) fell into misfortune: or, they suffered

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[1] Dmr. u. العجوز.

[2] Also pronounced with the teshdīd of ع (Ms., p. 62).

[3] Ms., p. 63.

wrong, oppression, injury. Likewise زكبوا ام جندب (and وقع القوم بأمّ حندب) is used to signify the perpetration of wrong or injury. As a proverb it is applied to a people who wrongfully kill some person who is not the real murderer of their man; as in the utterance of a poet :—

قتلنا به القوم الذين اصطلوابه * نهارًا ولم نظلم به ام جندب

i.e., we did not kill the non-murderers.[1] (3) The sand. So named because the locust (جندب) deposits its eggs in it, and whosoever treads thereon falls into evil.[2] This is another reason why it also signifies (4) perfidy, treachery, faithlessness, evil conduct. (5) Famine, drought. In this sense the word جندب is regarded to be of the measure فُنعُل from جدب (drought, dearth).[3]

ج ن ن

جَنِينٍ—; m. the hidden one: (1) Calamity, misfortune; and according to some (2) Death. Says Ibn Harma[t][4] :—

ما أُبالي مَن رابَه الدهرُ مالَم * تَعُدْ يوما عليكَ ام‌الجنين

ج ي ش

الجَيْشِ—; m. the army: A standard, banner. (R.)

ح ب ب

حُبابِ—; m. the bubble: The present world (الدُّنيا). So named probably because it is regarded to be transient like a bubble.

حَبِيب—; m. a dear one: (1) A woman who says prayers (المصلّية). (2) The chamelion.[5]

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[1] Mdn. u. this prov.
[2] Ibid.
[3] Ibid.
[4] Ms., p. 63.
[5] Muḥīṭ al-Muḥīṭ as quoted by Seybold (Ms., p. 76, note 2).

مَحْبُوبٍ—; m. the beloved: The serpent.

حُبَاحِبٍ—; m. Ḥubāḥib: (1) A certain flying insect which resembles the locust (جندب), spotted with green and yellow, while the wings are coloured yellow and red. (Taj.) (2) The present world. (Ms.)

ح ب ك ر حَبَوْكَرٍ—; m. the sandy desert (in which the traveller loses his way): Calamity, misfortune. They say proverbially وقعوافي ام حبوكر (and also ام حبوكرى and ام حبوكران) used of one who falls into a great misfortune and misery. They also say جاء بام حبوكر: He was the cause of (lit. brought) misfortune and trouble.[1]

حبوكرى—; Same as ام حبوكر q.v. According to Jahr. ام حبوكرى is the greatest trouble and misfortune (اعظم الدواهي), as in 'Amr b. 'Aḥmar al-Bāhilī's verse:—

فلما غسا ليلي و ايقنت انها * هي الاربى جاءت بام حبوكرى

حبوكران—; Same as ام حبوكر q.v.

ح ب ن حُبَيْنٍ—; m. one suffering from dropsy (or flatulence): A certain small reptile (دويبة) like the عظاية (or عظاء), and of a stinking smell.[2] It is so called because of the largeness of its belly; for حُبَين is the diminutive of أَحْبَن = one who lies on his back and his belly is swollen and inflated (نفخ بطنه). It is as big as the palm of the hand, and is said to be the female of the chamelion. According to Abu Zayd it is dust-coloured, has four legs, and

[1] M. from IS.
[2] MM.

in magnitude is equal to a female frog which is not large (ضخمة). When the hunters hunt it they say to it :—

امّ حبين انشرى بُرديك - إنّ الامير ناظرٌ اليك - وضاربٌ بسوطه جنبيك

(Spread thy two wings Oh Umm Ḥubayn! The commander is looking at thee, and is about to to strike thee with his whip); and they go on following it till fatigue overcomes it (يُدركها الاعياء), and then it stands upright (منتصبة) and spreads its two wings that are dust-coloured (أغبر). Under those two wings it has other wings also on which there are streaks (طرائق) of yellow, red, green and white, and the wings are like those of a butterfly (فراش). Says Ibn Qutayba[1]: Umm Ḥubayn faces the sun and revolves with it in whichever direction it be. The pl. of this *kunya* is امّ حُبينات and امّهات حبين and امات حبين. In the Ḥadīth of 'Uqba' are the words اتموا صلاتكم ولا تصلوا صلاة ام حبين which they explain by saying that the prayer has been so called because when Umm Ḥubayn walks it bends its head very low (تطاطئ راسه كثيرا) and raises it owing to the largeness of its belly (بطن), and thus it falls and rises on its head. Thus it is that the (careless sort of a) prayer of such people is likened to ام حبين.[1]

ح ث ر

حُثور—; m. pimples or blotches (?) : The hyena. So in R., who has probably taken حثور to be the pl. of حَثرة a pimple or blotch. But I am unable to find any authority for this pl. form of the word, nor حُثور as synonymous with حثرة.

[1] Dmr. u ام حبين.

ح د ث الحَوادِث—; m. accidents, happenings: News of great importance. (R.)

ح ر ب الحَرْب—; m. the war, battle: The standard.

الحَرَب—; m. strife, plunder: War, warfare.

ح ر ث حارِث—; m. the lion: The female of ابوالحارث *i.e.*, the lioness.[1]

ح ر ف الحُرُوف—; m. letters: The letters الف, واو and ى.

ح س س حُسَيْس[2]—; m. Ḥusays: One of the little reptiles of water, of a black colour, and has many feet (Dmr.). The word حُسَيس may be regarded as derived from حِسّ (motion, movement), the diminutive form indicating the very slow movements of the insect.

ح س ن حَسّان—; m. Ḥassān (a very beautiful one?): A little reptile of the size of the palm of the human hand.

الحسين—; m. Ḥusayn: The food called جُوذابه

ح ف ص حَفْصَة—; m. Ḥafṣa[t]: (1) The (domestic) hen. (2) The female vulture (الرَخَمة). (3) The female duck.

حَفْص—; m Ḥafṣ: The soup. *Cf.* ابوهستام

ح ف ظ حَفْظَة—; m. preservation: The hen. So in R., who reads ح with *fetha*. But I am tempted to think it should be read with a *kesra*, for حِفْظَة =zeal to defend, anger (الحمية والغضب) would

[1] Taj. u. حفص.

[2] Ms. has حُشَيش which is explained as the female gazelle.

indeed convey a better idea of the mother-serpent's jealous regard of her eggs and little ones. Or else حَفظة is a mistranscription of حفصة (أمّ) q. v. above.

ح ف ن حَفَّان—; m. a young ostrich: The female ostrich.

ح ل س حِلْس—; (and الحِلِس): m. a saddle-cloth: The she-ass. As is well-known, the ass is used in Arabia as a beast of carriage.

ح ل ق م حُلْقُوم—; m. the throat: A fairy who is supposed either to bring on, or to cure, a quinsy or sore throat. (R.)

ح م د مَحْمُود—; m. the praiseworthy one: The she-ass.

ح م ر س حَمارِس—; m. the brave: (1) The gazelle (Dmr., who reads it with the *fetha* of the unpointed ح while Taj. reads it with *ḍamma*.). Jam. calls it (2) a beast having many legs (قوائم) while M. characterises it as an aquatic beast (دابة تكون في الماء).

ح ن ب ص حَنْبَص—; m. stratagems: The female fox.

ح ن ن حَنِين—; m. a lively emotion: Wine.

ح و ر حُوار—;; m. a very young camel: (1) The she-camel. And الحُوار is the female eagle.

ح و ل حائِل—m. a she-camel (such as is not pregnant): The she-camel. The proverb لا افعلُ كذا ما أرزمتْ أمّ حائل (as long as the Umm Ḥā'il does not bleat) means: I will never do so.

ح و ي أَحْوَي المُقْلَتَين—; m. two black eyes: The female gazelle.

ح ي و الحَيَاة— ; m. life : Water.

ح ب ث الخَبَائِث— ; m. the evil qualities (or dispositions) : Wine. According to Shamir[1] this *kunya* is applied to something that embodies and covers all kinds of vices, and this is how he interprets the Tradition : انقوا الخمر فانّها ام الخبائث I am inclined to think that it was this very Ḥadīth that originally gave rise to this *kunya*.

خ ب ص خَبِيصٍ— ; m. the mixed one : (1) The she-ass. (IM.) (2) The date-palm. (Taj.) With ال it signifies the anus.[2]

خ ث ل خُثَيل[3]— ; m. Knuthayl : The hyena.

خ د ش خِدَاشٍ— ; m. (mutual) scratching : The cat. *Cf.* ابو خداش

خ ذ ر ف خُذْرُوف[4]— ; m. a quick-paced one : The hyena.

خ ر ب الخَرَابِ— ; m. the ruin (or depopulated, deserted house or abode) : (1) The female owl. (2) The mouse.

خ ر ج مَخْرَجٍ— ; m. an outlet : The black beetle. (الخنفساء)

خ ش ش الخُشَيش— ; Same as ام الخشيش q.v.

خ ش ف الخِشْف— ; m. the young gazelle : The female gazelle. Says Dhur-Rumma[5] :—

لها جِيد ام الخشف ريعت فاتلعت * ووجهٌ كقرن الشمس زيّان مشرق

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[1] Quoted by M. So also Nihāya, u. ام

[2] Ms., p. 86.

[3] Seybold (Ms., p. 86, note 1) quotes Suyūṭī's reading with ث in place of ث

[4] Suyūṭī's reading (as quoted by Seybold, Ms., p. 86) is الخذوف . There is, however, no difference in the sense of these two words.

[5] DhR., LII, 16.

خشّاف—; m. a bat: Calamity, misfortune. Such is also the sense of خشاف without ام (Taj.)

خ ص ی الخُصَيْتَيْن—; m. the two testes: The skin of the body between the navel and the pubes.

خ ف ش خُفّاش—; m. a bat: Misfortune, calamity. So in R. Interestingly enough, خفاش is the metathetical form of and synonymous with خشاف.

خ ل ل خَلّ—; m. vinegar: The wine, such as has begun to get sour. Says a poet:

رميت بامّ الطل حبّة قلبه * فلم يلتمش منها ثلاث ليال

الخَلّة—; m. the young camel (both male and female): A she-camel that has given birth to some young ones. Says a poet[1]:—

في كلّ عام ضعنة و حلّة * و نحن اهل ابل و ثلّة
العير و الشاة و ام الفلّة * تدفع عنا السنة المطلّة

خ ل ف الخُلْفُف—; m. Khulfuf: Calamity, misfortune.

الخُلْفُق—; Same as ام الخلفف.

خ ن ب س الخُنابِس—; m. one suffering from a sore nose: Grief, sorrow. A poet says[2]:—

فان تُدّ بِرِي بالوُدّ أُدبِر بمثله * وان تقبلي اقبل بام الخنابس

خ ن ث ر خُنْثُور—; m. calamity: Calamity, misery, misfortune. The word خُنْثُر (also pronounced as خِنْثِر and خُنُثُر, pl. خَنَاثِير which is synonymous with خَنَاسِير) implies a calamity, misfortune, etc. *Cf.* also the word خُنْتُور (like خِنْتَار) meaning intense, severe hunger.

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[1] Ms., 87.
[2] Ibid.

خ ن ث ل —خَنْثَل; m. a weak man: The hyena.

خ ن ر —خَنُور; (and خَنَّور and خِنَّور)[1]: (1) The female hyena. (2) The cow, according to Abu Riyāsh. (3) Calamity. (4) Easiness, plentifulness, pleasantness, softness, delicacy. (5) The present world (الدنيا). (6) The deserts. (7) The podex, the anus. But in this sense the reading of the ن with a *teshdid* is doubted by Abu Ḥātim, and Ibn Khālawayh thinks it is the name of the podex of the bitch. In the saying وقعوافي امخنور (or..... وقع القوم في) the *kunya* is interpreted in senses (3), (4) and (5).

خ ن ش ف ر —خَنْشَفِير; m. Khanshafīr; Calamity, misfortune, misery.

خ ن ف ق —الخَنْفَق[2]; m. the calamity: Calamity, misfortune.

خ و ر —خُوار; m. bleating: The anus, podex.

—خَوران; m. Same as امخوار.

خ ي ر —الخَير; m. goodness: Every kind of good conceivable; for this *kunya* covers all of them (تجمع كل خير).[3]

خ ي ل —الخَيل; m. horses: The syce, keeper of the horse.

د ب ك ل —دَبْكَل; m. the thick-skinned one: The hyena.

د ث ر —دِثار; m. a mantle: The mosquito-curtain

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[1] Jam. gives the opinion of Abu Riyāsh and Ibn Durayd to the effect that this word may also be read with the pointed ز instead of the unpointed ر

[2] Taj. has خَيفَق and خَنْفَيق for الداهية.

[3] The Nihaya, u. امم.

د خ ن دُخْنَةٌ—; m. a perfume, incense: The bee.

د ر خ م دُرَخِمِين—; m. misfortune: Calamity, misfortune. Says Abu Nuwās[1]:—

تطلق عنها هذه ارسالها * ام نآد و در خمينا

د ر ز دَرِزٌ—; m. a breach: The anus, podex.

دَرِزَةٌ—; m. a seam (of garment or cloth): The present world. IM. omits ة from the end.

د ر س دِرْآسٌ—; m. of ادراس: The *pudendum muliebre*. See ايوادراس.

د ر ص دِرْآصٌ[2]—; m. young jerboas: (1) The jerboa. (2) Destruction, death; perilous situation. (3) Dark and uncertain circumstances or affairs. They say وقعوا في ام آدراص for one who is flung into straits and perilous circumstances, or in uncertain and unknown places.[3] This is proverbially quoted to express fraud and deceit, for a jerboa's hole is filled with earth. Says a poet:—

انما ام ادراص بارض مَضِلّة * بَاغْدَرَ من قيس اذا الليين اظلما

د ر ن دَرَنٌ—; m. filth, pollution (or vileness, abjectness): The present world, the present state of existence.

دَرِينٌ—; m. dry herbage: A barren, sterile, unfruitful land or ground. Jahr. quotes a poet to say:—

تَعالَ نسمّط حُبَّ دَعْدٍ و نَفتدي * سوا عين والمرعى بامّ درين

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[1] Ms., p. 95.

[2] Ms. (p. 94) reads it as دراص.

[3] M. on the authority of IS.

(Come, let us stick to our love for Da'd. Let us go out in the morning, even though the pasture lies in a sterile land.) (2) Straits. (R.)

د س م دُسْمَةٌ—; m. blackness: The cooking-pot.

د ف ر دَفْرٌ—; m. calamity and misfortune: (1) The present world. (2) The anus. (3) Calamity.

دَفْرَةٌ—; As read by Ibn al-'A'rābī: Same as ام دفر.

دَفارِ—; Calamity, misfortune. See ام دفر.

د ل د ل دُلْدُلٌ—; m. a hedge-hog: The female of a hedge-hog (قنفذ).

د م غ الدِماغ—; m. the brain: The thin skin in which the brain is contained, the *dura mater*. *Cf.* ام الراس and ام الهام (Ms.).

Says 'Aws al- Hujaymī:—

وهم ضو بوك ام الراس حتي * بدت ام الدماغ من العظام

د ه م الدُهَيم—; m. calamity, misfortune: (1) Death. (2) Sorrow. (Jam.) (3) Calamity, misfortune, scourge. The origin of this *kunya* is related[1] to have been this. دُهَيم was the name of the she-camel of 'Amr b. al-Zabbān al-Dhuhlī. When he and his brothers were killed and their heads were carried on her, it was said اثقل من حمل الدهيم (more weighty than the load of al-Duhaym) and أشأم من الدهيم (more unlucky than al-Duhaym). Later on it was applied to Calamity.

[1] Ms., p., 95, 96.

د و ي مُدَّوٍ—; m. the scum-eater: Used proverbially[1] for one who hides himself from something. Says Yazīd b. al-Ḥakam al-Thaqafī:

بدا ملك غش طالما قد كتمته * كما كتمت ذاء ابنها امدوي

ذ ر ع ذارِع—; m. the tiller: The female dog, slut.

ذ ف ر ذَفَر—; m. stench: The present world. But the more well-known form is with the unpointed د—see ام دفر.

ذ ق ن الذَقَن—; m. the chin: Calamity, misfortune.

ر ء س الرَأس—; m. the head: The thin skin that is upon the head, or the bag in which the brain is contained. The *dura mater*. *Cf.* ام الدماغ and ام الهام

ر ء ل الأرْؤُل—; m. young ostriches: The female ostrich. Likewise ام الرئال.

ر ب ح رَباح—; m. liberality: A certain bird, dust-coloured, red in the two wings and the back, eats grapes.

ر ب س الرَبِيس—; m. the hard one: (1) The serpent. (2) Calamity, misfortune, misery. Another reading is, رُبيس which is diminutive from رَبْس (and رَبِيس which signify الداهية من الرجال *i.e.*, a cunning, astute, quick-witted person): striking with both hands.

ر ب ع أربَع واربعين—; m. forty-four: (1) The centipede. (2) The wood-louse. (S.) In quoting the modern (Egyptian) proverb حسبنا حساب الحية والعقرب و ام اربع وار العبين ما كانت لنا فى حساب Burckhardt

[1] Ms., p. 200, where a story is related about the origin of this *kunya*.

describes the creature as "a small spider-like insect, which is said to have forty-four feet, whence it derives its name. It is reputed extremely venomous."[1]

ر ب ق الرُّبَيْق —; m. al-Rubayq: (1) Calamity, misfortune. This meaning is (according to Z.) based on (2) the viper, for it is a short thing and when it coils up (تثنت) it resembles a noose-cord (رِبق). Thus, says Mdn.[2] ام الربيق is a calamity which encircles and envelopes (تحيط وتدور) the people in such a way that they find themselves entangled in a noose (حتى يرتبقوا فيها). There is a proverb جاء بام الربيق على أُرَيْق: He brought us a calamity. According to Al-'Asma'ī[3] this was remarked by a man who had seen the Ghūl riding an ash-coloured camel (أورق, dim. أُرَيْق). (3) War, battle.

ر ج ل الرَّجُل —; m. the man: (1) The man's wife, the person who manages the affairs of the house. (2) The present world. (R.)

ر ج ي رَجِيَّة —; m. something hoped for: The bee.

ر ح م الرُّحَم —; m. Ruḥm: (1) The source of mercy, pity, compassion (رَحْم). (Taj.) (2) The world. (R.)

ر ذ ل الرَّذَائِل —; m. low, contemptible qualities: Ignorance.

ر ز م مِرْزَم —; m. the Mirzam star: The cold north wind; or, according to Ibn Sīda', wind

[1] Arabic Proverbs, p. 65. He, however, confesses that he never "happened to see one."
[2] u. the proverb . . . جاءبام الربيق
[3] Quoted by Mdn.

(without restricting it to its advent from the north or any other direction). Says Ṣakhr al-Ghayy satirising one Abu Muthallam :—

كأني اراه بالحلاءة شاتياً * تقشر اعلى انفه ام مزرم

(As if I see him at Ḥalā'at (which is an extremely cold place) in winter, when the cold north wind was peeling off his nose.) (2) Calamity, misfortune.[1]

ر ز ن — رِزِين; m. a modest one: A kind of sweet cake called عَصِيدَة.

ر س ل — رِسالَة; m. the message: The female vulture, the female of *vultur percnopterus* (الرَّخَمَة).

ر س م — رَسِم; m. a mark (or vestige, that cleaves to the ground): The hyena. According to IS. it is so called because it cleaves to the road (قد رسم الطريق) it has once adopted, and never leaves it.

— رَسِمَة; m. a mark: The cooking-pot.

ر ش د — راشِد; m. one who follows the right way: (1) The female rat. (2) The desert, the jungle.

— راشِدَة; m. the rightly guided one: The desert. (Jam.)

ر ش م — رَشَم; (and رِشَم); m. the mark: (1) The hyena. (2) Calamity. (3) The anus.

ر ع ل — رِعال; m. a herd. The hyena.

ر ع م — رِعِم; m. fat (grease): The hyena.

ر غ م — رِغِم; m. a hyena: The hyena.

[1] Ms., p. 200.

ر ق ب رَقُوب—; m. a childless woman: (1) Calamity, misfortune, catastrophe. (2) Death. Says Hāni' b. Mas'ūd :—

ان كسري عداعلى الملك النعمان حتى سقاة ام الرقوب [1]

الرَقِيب—; m. the watch (or guardian): Calamity, misfortune. (M.) *Cf.* the last *kunya*.

الرَقَبُوت—; Calamity, misfortune.

ر ق ش رَقاش—; m. one speckled with black and white: (1) The female hyena. (Dmr.) (2) The female leopard. (3) The female fox. (Ms.)

ر ق ن الرَقُون—; m. al-Raqūn: Calamity, misfortune. See ام الرقوب

ر م ح الرُمح—; m. the spear: The standard, banner, ensign (as being the cloth that is attached to a spear). Says Khalīl :—

وسلبنا الرمح فيه امة * من يد العاصي وما طال الطُوَل

ر م ل رِمال—; m. sands: The hyena.

ر م ن رُمّان—; m. a pomegranate: The hyena.

ز ب ر زوبر—; m. Zawbar: Calamity, misfortune.

ز ب ع زوبعة—; (1) m. the evil spirit (or genii) Zawba'a[t]: A whirlwind of dust and sand, rising towards the sky like a pillar. According to Al-Layth it is the same as is known among the children of the Arabs of the desert as ابو زوبعة. Both of these *kunyas* are used as declinable as well as indeclinable nouns.

(2) m. Satan, Devil: The furious wind, blast, storm.

[1] Ms., p. 108.

ز ب ق زَنْبَقٍ—; m. the white lily : Wine.

ز ر ع زُرْعَةٍ—; m. a seed : The female partridge.

ز ف ر زافِرَةٍ—; m. a rib : (1) The present world. (2) The female of بَبْر [1]—, or the فرانق

ز ل م الأَزْلَمِ الزُّنام—; m. Time and Calamity : Calamity, misfortune. ازلم signifies Time, and الزُّنام is one of the names of Calamity (الداهية). Says Ru'bat :—

غُوَلاً و ام الازلم الزنام [2]

ز ن ف ل زَنْفَلٍ—; m. a quick-paced one : Calamity, misfortune.

ز ي ب أَزْيَبٍ—; m. Calamity : Calamity, misfortune.

ز ي ت زَيْتٍ—; m. (olive-) oil : The hyena.

ز ي د زِيادٍ—; m. Ziyād : The sweet cake, called عصيدة

س ب ل سَبِيلٍ—; m. the way, road : The female elephant.

س خ ل السِّخالِ—; m. the kids : The she-goat.

س ر ح سِرْياحٍ—; m. a locust : The locust.

س ع د سُعَيدٍ—; m. Su'ayd : The barley broth (الكشكية)

مَسْعُودٍ—; m. a lucky one : The she-camel.

س ق ب السَّقْبِ—; m. a young camel : The she-camel.

س ك ت سَكْتٍ—; m. silence : The female louse.

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[1] So L. on the authority of the Tahdhīb. And ببر is explained as a certain beast of prey, the فرانق (or lion's provider) that emulates the lion in running, or that is hostile to the lion.

[2] Ms., p. 14.

س ك ن سَكَنٍ—; m. the residents (of an abode) : The mistress of the house, the hostess. *Cf.* ام المثوي

سُكَيْنٍ—; m. an ass (such as is light and active) : The posteriors (الاست). (Jam.)

س ل ع م سِلْعَامَةٍ—; m. a wolf : The female wolf.

س ل م سَلْمَةَ—; m. Salma[t] : (1) The dove. (2) The present world.

سالِمٍ—; m. the safe one : The black beetle (الخنفساء).

سُلَيْمَانَ—; m. Solomon : The weasel.[1]

س م ح سَمْحَةٍ—; m. a liberal (or generous) one : The she-goat (العنز).

س م ع السَمْعِ—; m. hearing : The brain. They say ضَرَبَهُ عَلَى ام السَمْعِ (as also ام السميع and ام الدماغ) : He struck him upon the brain.

السَمِيعِ—; m. the hearing one : Same as ام السمع

س م و السَمَاءِ—; m. the sky : The Milky Way. *Cf.* ام النُجُوم q. v.

س ه ر ساهِرٍ—; m. the wakeful one : The scorpion. So is also ام ساهِرَةٍ.

س ه ل سَهْلٍ—; m. an open plain : The small salt fish (الصحناء).

س ه م السِهَامِ—; m. the arrows : (1) The bow. (2) The quiver. Says Ru'ba b. al-'Ajjāj, in praise of of a hunter :—

[2]في كفّه خيّابة مأروب * ام سهام سهمها مذروب

[1] Hava, Al-Faraid, u سلم

[2] Ms., p. 120.

س و د الأَسْوَد— ; m. the black one : The black beetle.

سُوَيْد— ; m. water : (1) The she-ass (IM.). (2) The date-palm. (Taj.) (3) The anus. (4) The horse. (R.)

ش ء ن الشُّئُون— ; m. the suture of the skull : The brain. Says a poet :—

وهم ضربوك امّ الرأس حتي * بدت امّ الشئون من العظام[1]

ش ب ل شِبْل— : m. the young lion : (1) The lioness. The proverb شَمَّ بِخَنَّابَةَ امّ شبل (He smells with the nose of a lioness) is used of a proud and haughty person. (2) The female elephant. (Dmr.)

ش د ن شادِن— ; m. a young gazelle : The female gazelle. *Cf.* امّ الخشف Says Dhur-Rumma[t] :—

ذكرتُكِ اذ مرّت بنا ام شادن * إمام المطايا تَشرئبّ وتَسْنَع[2]

ش ر ر الشَّرّ— ; m. the evil : (1) All kinds of evil on the face of the earth. Contr. of امّ الخير q. v. (2) Wine.

ش ع ث الأَشْعَث— ; m. the wooden peg (or stake) : The goat. (Ms.) So called because it is tied to the peg.

ش غ و شَغْوَة[3]— ; m. an eagle : The female eagle.

ش ق ن شِيقُونَة— ; m. Shayqūna[t] : A certain bird which accompanies asses and goats and eats worms.

ش م خ شَمّاخ— ; m. the lofty one : The (female) cat. (Dmr.)

ش م ل شَمْلَة— ; m. the wrapper : (1) The present world. So called because it encompasses (تشتمل على)

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[1] Ms., p. 128.
[2] DhR., X, 11.
[3] Dmr. u. العقاب reads it without ة and with ال prefixed.

man's reason and intellect (Taj.). And for the same reason it is also explained as (2) Wine. (3) The sun. (4) The cold north wind.

ش ن ب ل شُنبُل— ; m. a kiss : A kiss, love-philtre.

ش و ء الشوء— ; m. the pleasure (?) : The eagle. (R.)

ص ب ر صَبّار— ; m. a great endurer : (1) A stony tract of land, difficult to walk upon and to cross through, for it is like a هضبة *i.e.*, it has no pass whatsoever. They say سلكوا ام‌صبار: They traversed such a tract of land. Z. quotes Ḥumayd to say :—

ليس الشباب عليك الدهر مرتجعاً * حتى تعود كثيباً ام صبار

(Youth will not return to you till ام‌صبار becomes all sand,—*i.e.*, never.) They also say وقعوا فى ام‌صبار (or ام‌صبور) meaning : They fell into calamity, or distressing and perplexing circumstances (like one lost in a pass-less mountain, هضبة) from which escape seems to be impossible or extremely difficult. (Taj.)

صَبُّور— ; A calamity. See ام‌صبار above. But in some copies of the "'Alfādh" of Ibn Sikkit it is put down as ام‌صَيُّور as if it were derived from صِيارة *i.e.*, stones. (Taj.) Says Himyān al-Sa'dī :—

أوقعه الله بسوء سعيه * فى ام صبور نادى و نَشِب[1]

ص ب ي الصِبيان— ; m. the boys (and girls): (1) The female owl. (Dmr.) (2) A disease[2] that afflicts children. The breeze (الريح) that strikes the children who sometimes swoon from it (غُشي عليهم). (IM.) According to the common belief this suffering is brought about by the evil influence and mischief of some (3) hobgoblin, ghost, or bugbear.

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[1] Ms., p. 135.

[2] It is perhaps this very disease which R. characterises briefly as "the epilepsy."

الصَّبِيَّيْن—; m. the two jaw bones: The skull of the head.

ص د ي الصَّدِي—; m. the brain[1]: A little piece of flesh (رَمِيعة) which is inside the brain.[2]

ص م خ الصماخ—; m. of the hole of the ear: The head.

ض ب ب ضِبابٌ—; m. the point of a sword: Hole, bore, orifice.

ضَبَّةٌ—; m. a lizard: The she-ass.

ض غ م ضَيْغَمٌ—; m. a lion: (1) The lioness. (2) The hyena. (3) Calamity, misfortune.

ط ب ج الطِّبِيجَةِ—; m. the podex: The anus, podex.

ط ب خ طَبِيخَةٌ—; m. the cooked (meat): (1) The she-ass. (2) The date-palm. (Taj.)

ط ب ق طَبَقٌ—; m. a cover (or lid): (1) A calamity, misfortune. (2) The serpent. (3) The tortoise. *Cf.* بنت طبق With ال it signifies the fat-tail (اَلِيَة)

ط ر ب طَرَبٌ—; m. pleasure: Wine.

ط ر ق ا طَرِيقٌ—; m. a road, way: (1) The female hyena. (2) With ال —the main road, highway, with other smaller paths and by-paths around it (حوله) or on either side of it, and (according to M.) the middle part of such a main road or highway. Says Kuthayyir:—

يُغادِرْن حَسْب الوالِقِيّ و ناصِح * تَخَصَّ بِهِ امُّ الطَّرِيق عِيالُها

(3) Calamity, misfortune. (M.) F. and the Muḥkam read it also as امة الطريق.

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[1] So in Ms.
[2] M. from IS.

ط ع م الطَّعام—; m. the food: (1) The stomach (of human beings); and (2) the gizzard (قانصة) of the animals. A poetess of the Banu Hizzān is recorded to have said of her disobedient son:—

رَبيبَتُهُ وهو مِثْل الفَرخ اعظمه * ام الطعام تَرَى في جلدهِ زَغَبا[1]

ط ف ل الطفل— ; m. the child (or boy): The mother with her child whom she suckles.

ط ل ب طَلَبَة— ; m. (the manner of) seeking, demanding: The female eagle.

ط ل ح طَلْحَة— ; m. Ṭalḥa[t]: The female louse.

ط ل ل الطَّل— ; m. the (light, weak) rain: The female lark (القُبرة). (Dmr.)

ط ل و الطَّلا— ; m. the young gazelle: The female gazelle.

ط ل ي الطُّلْبة[2]— ; m. the neck: The eagle. Also pronounced as الطَّلَبَة—.

ظ ب ي الظِّباء— ; m. the gazelles: A desert, a plain. Says a poet:—

وهان على ام الظباء نجاحتي * اذا ارسلت ثرياعليك سحوق[3]

ع ب ث ر عُبَيْثَران— ; (and عَبَوْثَران); m. the plant عبيثران The fragrant breath, breeze.

ع ب د عُبَيد— ; m. a (little) slave: (1) The desert, plain. (2) Calamity, distress. They say وقعوافي ام عبيد: They fell into misfortune, calamity. (3) A plot of land, such as when the rain falls all the other plots except that receives the rain. (4) Scarcity. (5) A year of drought. (6) A certain fish found in the Nile, and has no thorn in it.

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[1] Ḥam., p. 355.

[2] R.'s reading الطُّلَيْبَة seems to be incorrect.

[3] Ms., p. 147.

عبدالله— ; m. 'Abdullāh : A little flying insect having small red dots on its body and usually found in vegetables.

معبد— ; m. Mi'bad : (1) The frog. (2) The fish.

ع ب ر

عبور— ; m. 'Abbūr (a traveller ?): (1) The hyena. (2) Calamity, misfortune.

العبائر— ; m. perfumes : Wine.

ع ت ب

عتاب— ; (or عِتاب) ; m. 'Attāb : The female hyena. So called because of its limping gait. But Ibn Sīda' is not quite sure of it.

عتبان— ; m. 'Itbān : Same as ام عتاب[1].

ع ت ك

عتيك— ; m. the assailant : The female hyena.

ع ث ل

عثيل— ; m. the male hyena : The female hyena.

ع ث م

عثمان— ; m. a young serpent : The serpent.

ع ج ب

العجب— ; m. the wonder (or wonderful thing); The present world.

عجيبة— ; m. the wonderful thing : The female vulture. (Dmr.)

ع ج ل

عجلان— ; m. the quick one (?) : A certain bird, which is black in colour; or it is black (in the body) and white in the tail, which is often moving. It is also called قُوبَع and الفتّاح.

عجول— ; m. the hasty one : The she-camel and the cow when they have lost their young ones. Says Al-Khansā' :—

مالم بُوّ عجول عند مصرعه * لها حنينان اصغارا و اكبارا[1]

[1] Ms., p. 153.

ع ج ن عجينة— ; m.: ʿ Ajīnaʿ : The vulture (الرخمة).

ع ذ ب العذاب— ; m. torture : The wind.

ع ر ب العرب— ; m. the Arabs : The origin of the Arabs. A metaphorical way of referring to their origin (كناية عن اصلهم).

ع ر ز م عرزمة— ; m. contraction : The podex, anus.

ع ر ض عريض— ; m. the broad one : The hyena.

ع ر ط عريطا— ; (and العريط) ; m. ʿIryaṭ : (1) The scorpion. (2) Calamity, misfortune.

ع ز ر العيزار— ; m. Al-ʿAyzār : An aquatic bird, with a long neck, and otherwise known as السبيطر.

ع ز ز عزة— ; m. a young female gazelle : The female gazelle.

ع ز م عزم— ; (and العزم) ; m. ʿ Izm : (1) The anus, the podex (إست). The proverb كذبتك ام عزمك (Thy إست has belied thee) is used of one who offers false promises and threats. (2) The date-palm. (Taj.). (3) The horse. (R., who reads the word with the *fetha* of ع).

عزمة— ; m. the anus : The anus, podex. So is also ام عزامة and ام عزيمة.

عزمل— ; Same as ام عزم above. Also ام عزمن

ع ص م عاصم— ; m. the well-defended one : The food called السويق.

ع ط و عطية— ; m. a gift : The mill, or a hand-mill (الرحا)

ع ف و العطايا— ; m. gifts : The ink-pot.

عافية— ; m. soundness and security : (1) The serpent. (2) Poison (الحمة). (Ms.)

ع ق ب عُقْبَة— ; m. Uqba' : (1) The female louse. (2) The domestic hen. And as the mother of (i) the exterior of the bottom of a cooking-pot, or (ii) the soup (مَرَق) which the borrower of a cooking-pot leaves in the pot when he returns it to the owner : The cooking-pot.

ع ق ق عَقَاقِ— ; m. pregnancy : (1) The she-ass. (IM.) (2) The date-palm. (Taj.)

ع ل ق عُوْلَق— ; m. an intensely greedy one : The bitch.

ع ل ل العُلْعُل— ; m. the male ring-dove : The female ring-dove (القُنبرة).

ع ل م العُلُوم— ; m. the sciences : Grammar. (R.)

ع ل و عَلِيّ— ; m. 'Alī : The food called اسفيد باج.

ع م ر عَمْرٍو— ; m. 'Amr : The hyena.

عامِرٍ— ; m. 'Āmir : (1) The hyena ; and according to Dmr. the female hyena. (2) The cemetery (المقبرة). The proverb خامِرِي ام عامر (Hide thyself, oh hyena !) is used of a foolish person who talks nonsense, and lies in such a way as does not remain hidden from the hearers. (3) The posteriors. (4) The cauliflower (الكرنبيه).

عُوَيْمِر— ; m. the little 'Āmir : The hyena.

مَعْمُر[1]— ; m. an inhabited place : (1) The night. (2) The posteriors (الدبر).

عَمَار— ; m. 'Āmār : Greetings, salaam.

ع م م العمائم— ; m. turbans : The head.

[1] Jam, on the authority of Tha'lab.

ع ن ث ل عَنْثَلٍ— : m. a hyena : The female hyena. So also is the next following.

ع ن س ل عَنْسَلٍ— ; This is also used with the pointed ش for the unpointed س. See عنثل.

ع و د عُوْدٍ— ; m. perfume : The ventricle.

ع و ف عَوفٍ— ; m. the 'awf plant : (1) The female locust. According to IS.[1] it is a small greenish insect, having four wings, and is also called ام عُويف. H. mentions it in his Maq. XXXII. (2) The hyena. (3) An insect, otherwise known as طُحَن.

عُوَيْفٍ[2]— ; m. the little 'awf plant : According to IS., it is the same as ام عوف, to which Dmr. adds (on the authority of the Morassa') : It has a compact (ضخم) head.....and a long tail. When it sees a human being it stands on its tail and spreads out its wings, but it does not fly. It is also called ناشِرة بُرُدَيها (the spreader of its wings). The children play with it and say to it :—

ام عويف انشري بردَيكِ * ثُمّ طيري بين صحراويكِ

ان الا مير خاطِب بنتَيك * بعيشة و ناظِر ا ليكِ

Cf. this rhyme with the one mentioned u. حبين ام. (2) A small reptile known as بغرة بني اسرائيل. According to Dmr. it has two feelers (قرنان) and lives in the sand. "If you want it to come out of its hole," he goes on to say, "throw a louse into the hole. And when it has come out, take it in your hand, and slitting the

[1] As quoted by M.

[2] Ms. (p. 152) mentions ابو عويف as indicating a male locust.

back open, thrust into it a colyrium pencil, and anoint with it three times the eyes of any one suffering from whiteness (cataract ?) which will be cured by it."

ع و ل — عُوَيل ; m. weeping and crying : The female fox. (Dmr.)

ع و ي — العاوِيات ; m. the barking ones : The bitch.

ع ي ر — مِعْيَر ; m. Mi'yar : Calamity, misfortune, adversity. (M.) *Cf.* بنت معير

ع ي س — عِيسِي ; m. 'Īsā : The giraffe.

ع ي ل — عِيال ; m. a household (or family) : (1) The cooking-pot. (2) A man's aged wife.[1]

غ ت م — غُتَيم ; (and الغُتَيم); m. calamity, destruction : Calamity. When the people lose their way and perish they say اخذوا حياض غتيم (as also قُتَيم and طُسَيم), and hence this name for الداهية (calamity).

غ ر س — غِرْس ; m. a plant : A well containing water (رَكِيَّة). So M., on the authority of Abu 'Ubayda'.

غ س ن — غَسان ; m. Ghassān : The scorpion.

غ ف ر — الغُفْر ; m. a young mountain-goat (chamois): The mountain-goat, chamois. Says Ibn 'Aḥmar :—

[1] مالم تغفر علي دعجاء ذي علق * ينفي القراميد عنها الصم الوتل

غ م ر — الغِمْر ; m. rancour, spite, malice : The hyena.

غ ن ج ل — غُنْجُل ; m. Ghunjul : The animal known as عناق الارض .

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[1] Lane (u. ام) from the Tahdhib, on the authority of الشافعي.

غ و ث غِيَاثٌ—; m. aid, help, succour: (1) The cooking-pot. (2) The sky (السماء). (Jam.)

مُغِيث—; m. a helper: The middle part of the head. The Prophet is reported[1] to have said احتجم ام مغيث

غ و ل الغُول—; m. the Demon, ogre: (1) The snout of a hog (الفطيسة). (2) The present world; so called because it deceives the people and leads them to destruction.

غَيلان—; m. Ghaylān: A species of the trees known as العضاه which is the most thorny tree (اكثرها شوكا)[2]; or, a species of the lote tree.[3] The popular reading, the one with the kesra of غ (making the word a pl. of غُول) is disputed by Taj., who calls it a discarded and false (مردود باطل) opinion.

غ ي ر غِيَار—; m. barter: The cooking-pot.

ف ء ر الفَأْر—; m. the rat: Calamity, misfortune.

ف ت ح الفَتْح—; m. the conquest (or opening): The serpent.

ف ر ج الفَرَج—; m. freedom (from anxiety): A kind of food, otherwise called جُوذاب (and ذُرباج—from the Pers. كوذاب) prepared with sugar and rice and flesh-meat. Again, جُوذابه is a bread which is cooked by being put in the oven, while over it there is suspended some flesh-meat, which is so fresh and fatty that its gravy constantly flows down upon the bread till the latter is cooked. It

[1] Ms., p. 201.
[2] Jam. and F.
[3] Taj.

is so called because it frees one from all anxiety about seasoning it. H. mentions it in Maq. XIX.

ف ر خ الفراخ—; m. the brain : The skin which contains the brain. Says Al-Farazdaq :—

ونحن ضربنا هامة ابن خويلد * يزيد علي ام الفراخ الجواثم [1]

ف ر د فَرْد—; m. a solitary one : The grave.

ف ر ق د فَرْقَد—; m. a calf : The wild cow.

ف ر و فَرْوة—; m. Farwa' : (1) The skull of the head. (2) The goat. (3) The sheep, buffalo. (S.) (4) A catapult (منجنيق); as in a poet's utterance :—

كيف تَرى صنيع ام فَرْوة * تاخذهم بين الصفا والمَرْوة [2]

ف س د فاسِد—; m. an evil one : The female rat.

ف س و الفَسْو—; m. the wind (passing out in belching): The black beetle (خنفساء). *Cf.* ام النتن. The proverb أفسَى مِن الخنفساء explains the cause for this *kunya*.

ف ص ع ل فُصْعُل—; m. a scorpion : The female scorpion.

ف ض ل الفَضْل—; m. excellence : The food called هَرِيسة which consists of cooked wheat and meat pounded together.

الفَضائل—; m. the excellent qualities : Science, knowledge.

ف ع ل الأفعال—; m. actions : ..... [3] He did, acted, began (انشا), came (or faced اقبل).

ف ن ء الفَناء—; m. destruction, death : The present world.

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[1] Ms., p. 171.
[2] Ibid.
[3] Ms., p. 14. Seybold points out that there is a gap here in the MS. of the Ms.

ف ن د فَنْدَة—; m. a mountain: A species of dates. This is the idiom of the people of Egypt.

ق ب ر القُبُور—; m. the graves: The female hyena. It is so called probably because it digs up the graves in search of dead bodies, which is its cherished food.

المقابِر—; m. the graveyards: The female hyena. *Cf.* ام القبور above.

ق ر ء القُرْآن—; m. the Koran: (1) The opening surah of the Koran, *viz.*, Al-Fātiḥa', which is also known as ام الكتاب; or, (2) all such verses of the Koran as contain some law.

ق ر د القُراد—; m. the tick: The place between the fetlock and the hoof of a horse; the part between the phalanges (سُلاميات) of the foot of a camel.

القِرْدان—; m. the ticks=ام القراد; pl. أُمهات القُرْد, as in Dhur-Rumma':—

رَمَى امهات القرد لذع من السفا * و أحصد من قُرْ يا نة الزَهَرُ النضر

ق ر ي القِرَى—; m. hospitality: (1) Fire. (2) A dish made of meat, wheaten flour; the سكباج.

ق س ط ل قَسْطَل—; m. dust: (1) Calamity, misfortune. (2) Death. (3) War. (4) The female wolf. Says Al-Shanfarā:—

فان تبتئس بالشنفري ام قسطل * فما افتبطت بالشنفري قبلُ اطول

ق ش ح قَشاح—; m. a hyena: The (female) hyena.

ق ش ع قَشْع—; m. a passing cloud: Winds.

ق ش ع م قَشْعَم—; m. the old one: (1) The female vulture, (2) the spider (female), (3) the hyena, (4) the lioness, (5) death, (6) calamity, (7) war, and

(8) the present world. Ms. quotes Zuhayr's verse:—

فشدّ ولم ينظر بيوتًا كثيرة * الى حيث القت رحلها ام قشعم

and says here it signifies any of these things. Other authorities also support these explanations. In the saying طرقته امقشعم Mdn. explains the *kunya* to mean death.

ق ط و القَطا—; m. the Qaṭā bird: The desert (which is its cherished home).

ق ف و القَفا—; m. the back of the head: (1) The head. (2) The wound in the back of the head.

ق و ب قُوبٍ—; m. a young bird: (1) The domestic hen. (2) Calamity, misfortune, disaster.

ق و د القَوَدِ—; m. retaliation: The hyena.

ق و ر القُورِ—; m. a thicket: (1) The hyena. (2) The hen.

ق و م القَومِ—; m. the people: The chief of the people; one who is responsible for the feeding of the people and serving them,[1] for to him only the people betake themselves[2] and to him only they entrust their affairs.[3] Thus the chief of a people is their mother. Says Ḥājib b. Ḥabīb al-'Asadī:—

وَيْلُ أُمِّ قومٍ رأينا أمسِ سادَ تهم * في حادثاتِ الدَّهرِ خيرَ جيرانِ

(How noble the people whose chiefs we saw but yesterday——the best of protectors when calamities hover around).[4]

ق ي س قَيسٍ—; m. Qays: (1) Same as عويف ام. (2) The female vulture (الرَخَمَة).

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[1] IM. u. بنى
[2] Taj.
[3] Jam.
[4] Mfd., p. 726, l. 3.

ك ب د — الكَبِد ; m. the liver: So in Jam. But Taj. styles it ام وجع الكبد q. v.

ك ب ر — كَبِير ; m. the great one: The female vulture (الرَخَمة).

— الكَبائِر ; m. grave sins: Wine. *Cf.* ام الخبائث

ك ت ب — الكِتاب ; m. the book: (1) The opening surah of the Koran, *viz.*, Al-Fātiḥa^{t}; so called because it is the first thing recited in the ritual prayers. (2) The preserved Tablet (اللوح المحفوظ), which is alleged to be the sense of the Koranic verse وانه في ام الكتاب لدينا (XLIII). But Ibn ' Abbās says it means (3) the Koran, from the beginning to the end, and it is in this sense that Jhar. explains the verse هُنّ ام الكتاب (III, 6). But the best and the most sensible explanation is the one offered by Al-Zajjāj, according to whom it means (4) the original, real, book or scripture (اصل الكتاب). And this is the meaning that seems to me to apply most happily to all the three places where this *kunya* occurs in the Koran: III, 6; XIII, 39; XLIII, 4.

ك ر ب — كُرُنب ; m. beet, cabbage. A vegetable (cabbage ?).

ك ع ب — كُعَيبَة ; m. of a little raised spot: The cooking-pot.

ك ف ت — كِفات ; m. a place, such as comprehends and collects. The earth. (Jam.) The *kunya* seems to have been based on the Koranic verse ألَم نجعل الارض كفاتا احياءً وامواتا (LXXVII; 25, 26): Have we not made the earth a place that comprehends and collects the living and the dead?

ك ف ف الكَفّ—; m. the palm: The hand; as in Ru'ba[t]:—

مُكْعَبَر الأرساغ او مكنّع * وليس في ام كفّه اصبع[1]

ك ل ب كَلْب—; m. a dog: A certain small tree (شُجَيرة) having thorns, grows in mountains, has yellow leaves (F., but Jam. has "yellow blossoms" نور) and is rough: and when it is put into motion it gives a foul odour. According to Taj. it is so called because of its thorns, or because it stinks like a dog. According to Ms. it is also called ام كُلَيب.

كَلَبة—; m. a bitch: Fever. They say اصابته ام كلبة: He is suffering from fever. The Prophet is reported [2] to have said once about Zayd al-Khayl (or al-Khayr): نِعم فتي ان نجامن ام كلبة *Cf.* ام الهبرزي

ك ل ث م كُلثُوم—; m. Kulthūm: (1) The lioness. (2) The female ostrich.

ك ل ذ كِلْواذ—; m. Kilwādh: (1) Calamity, misfortune. (2) The hyena.

ك ن د كِنْدَة—; m. Kinda[t]: A radish, a turnip.

ك ي ح كَيْح— : m. a mountain: The eagle.

ك ي س كَيسان— ; m. Kaysān: The knee; the posture of sitting with one knee over the other.

ل ج ج اللِجاج— ; m. the intensely black one (lit. the deep seas,—as in the phrase كأنّ عينه لُجّة: as if his eyes were a sea—intensely black): The black beetle: (الخنفساء) (Dmr.)

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[1] Ms., p. 187.

[2] Nihāya, u. ابو.

ل ذ م مِلْذَم—; m. a heavy and fleshy fellow: Fever. This is the reading adopted by Layth. The Arabs say: قالتِ الحمّي انا ام ملذم، آكل اللحم و امصّ الدم (Says the fever, "I am the mother of the fleshy person: and I will eat the flesh and suck the blood.") The idiom أَلْذَمت عليه الحمّى means: He suffered from fever constantly (F.). Another reading of the word is with the pointed ذ. M. has adopted the latter and regards the reading with the unpointed د as wrong (خطا). But he quotes Al-'Akhfash to say, "Commonly people pronounce it with د, and I never heard it being pronounced with ذ except from Abul-'Abbās. And I do not deny this or that (هذا, لا هذا) reading." Jam. insists on its pronunciation with the unpointed د (deriving it from لَدَم = ضَرَبَ الوجهَ حتى يحمرّ though at the same time explains ملذم (with the pointed ذ) to have come from لذم به = لزمه (He stuck to it).

ل ذ م مِلْذَم—; Another reading for ام ملدم q. v.

ل ه م اللُّهَيْم—; m. the devourer: (1) Calamity, misfortune (Jahr.). Ibn Barrī[1] quotes some poet's verse:

لقوا ام اللهيم فجهزتهم * غشوم الورد تكنيها المنونا

(2) Death; as in a poet's utterance[2]:—

اتت ام اللهيم فصيّرتهم * احاديثا و شاما في البلاد

Such is also the sense when they say نزلت به ام اللهيم *i.e.*, death befell him. According to Shamir,[3] Death has been so called because it devours every

[1] Mentioned by Taj. u. لهم.

[2] Quoted by Z. u. شيم.

[3] As in Taj. u. لهم.

one (يلتهم كلّ احد). In this sense R. reads it with ن instead of ل . But it is a pure misconception. *Cf.* ام الدهيم.

ل و ء — اللِواء ; m. the banner: The spear to which the banner is attached.

ل و ح — لُوح ; m. air, atmosphere (between heaven and earth): The female eagle.

ل ي ل — لَيلى ; m. Laylā: Wine. IM. explains this as meaning dizziness or intoxication (النشوة); while Jam. cites the authority of Abu Ḥanīfa[t] al-Dīnawarī to explain the *kunya* as signifying only the black wine (الخمر اذا كان لونها اسود).

م ز ن — مازِن ; m. Māzin: The female ant. *Cf.* ابن مازن.

م ل ق — المُلَيق ; Another form of ام البليق q. v.

م ن ي — المُنى ; m. desires; hopes: The hen.

المَنايا ; m. deaths: A calamitous, grave death (معظم المنايا).[1]

م و ل — الاَموال ; m. the riches, wealth: The sheep; so called because it brings in so much of abundance and riches to its owner.[2]

ن ء د — نَآد ; m. calamity: Calamity, misfortune, adversity.

ن ت ن — نَتِن ; m. stench: The black beetle (الخنفساء). So called because of its stinking. *Cf.* ام الفسو.

ن ج م — النُجوم ; m. the stars: (1) The milky way. So called because it is the place where stars are collected together (IM.), and it has been used in this sense in the poetry of Dhur-Rumma[t] (M.). They

[1] Ms., p. 14.
[2] Ms., p. 201.

say ماأشبه مجلسك بام النجوم—so on account of the abundance (كثرة) of its stars. (Taj.) Says the poet Ta'abbaṭa Sharra[n]:—

يري الوحشة الانس الانيس ويهتدي * بعيث اهتدت ام النجوم الشوابك

and Dhur-Rumma[t]:—

و شعث يشجون الفلاني رؤوسه * اذا حولت ام النجوم الشوابك[1]

According to Al-Hilālī it is (2) the constellation Pleides. (M.) (3) The sun.

ن د م النَّدَامَة—; m. repentance: Haste (العجلة), precipitation.

ن ذ ر مُنْذِر—; m. a warner: A mare (الرمكة).

ن ز ل المَنْزِل—; m. the house (or abode): The wife, the lady of the house, one who manages the affairs of the home. Thus اتي ام منزله[2] means: He came to his wife, mistress of the house. So also the hostess, landlady. *Cf.* ام البيت and ام المثوي.

ن س م النسيم—; m. the breeze: A high, lofty mountain-pass.

ن ع م نَعَامَة—; m. an ostrich: The desert.

ن ف ع نافع—; m. the beneficial one: (1) The domestic she-ass. (2) The hen.

ن ف ل نَوْفَل—; m. a male hyena: The female hyena.

نُفَل—; The female hyena.

ن ق ص نُقْصَان—; m. loss: The serpent.

ن ه ض نَوَاهِض—; m. the various parts of the head: The brain. *Cf.* ام الفراخ.

ن ه ك نَهِيك—; m. the noble one: The ostrich.

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[1] DhR., LV, 34.
[2] As in the Ḥadīth of Thumāma[t], quoted by IM.

ن و ب —نَوبَة; m. opportunity (or turn): The female ant.

ن و ر —أنوار لسماء; m. the heavenly lights (stars)[1]: The sun. Says a poet:—

[1] أمن ظلّي تحيد كان بيني * و بينك ام انوار السماء

ه ب ر —هُبيرة; m. a little shell: The female frog; the fem. of ابوهبيرة q. v.

ه ب ر ز —الهِبرِزي; m. an excellent horseman (or a brave and active person): Fever; as in the following verse of 'Ajīr al-Salūlī:—

[2] فان تك ام‌الهبر زي تمصرت * عظامي فمنها ناحل و كسير

ه ت م —الهَتم; m. breaking, smashing: Death.

ه ث م —الهَيثَم; m. the young eagle: The female eagle.

ه د ر —الهَدير; m. the cooing: (1) The twittering of any bird. Says Dhur-Rumma[t]:—

[3] دَوِّم فيها رزّة و أرعدا * اذ جاورت ام‌الهدير الأُدَدا

(2) The dove, pigeon.

ه ر ب ذ —الهِربِذي (and الهربذي): (1) Fever. (2) Death.

ه ر ر —ابي هُرَيرَة; m. the father of the kitten: The cat.

ه ر ش —الهَرّاش; m. the barking one: The bitch.

ه ش م —الهَشيمَة; m. the dry one; One of the big dry trees. Says Al-Farazdaq:—

[4] اذا اطعمت ام‌الهشيمة ارزمت * كما ارزمت ام‌البَوار المطفّل

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[1] Ms., p. 14.
[2] Taj., who also mentions تلمست for تمصرت. But Jam. reads it تتبعت
[3] DhR., XIV, 51.
[4] Ms., 232.

ه ن ء — عاني ء; m. the pleasant one: The aromatized soup of lentils (العدسيّة)

ه ص م — الهَيصَم; m. the lion. The lioness.

ه ن ب ر — الهِنبِر; m. the hyena: (1) The female hyena, in the dialect of the Banu Fazāra[t].[1] It has been used in the diminutive form by the poet Al-Qattāl al-Kilābi :—

يا قاتَلَ‌الله صبيانا تجيبي ء بهم * [2]ام‌الهنيبر من زند لها وارِي

(2) The domestic she-ass. They say proverbially احمق من ام‌الهنبر where most probably this is the sense.

ه و م — الهام; (and الهامَة): m. the skull: The meninx. It is said to be synonymous with ام‌الدماغ and ام‌الرأس which are, however (as pointed out by Lane), distinct from it. Dhur-Remma[t] says :—

[3]وهام تزلّ‌الشمس عن امّها تها * صلابٍ و آلٍ في المثاني تقعقع

و ب ر — أوبَر; The truffles. See بنات اوبر.

و ج ع — وجع الكَبِد; m. the pain of the liver: A herb (بقلة) of a dust-coloured blossom. It is so called because it is a good remedy for the pain of the liver. It is used in singular as well as a plural sense.

و ح ش — الوَحش; m. the wild ones: Used metaphorically about damsels and women; as in a poet's utterance :—

[4]فما امّي وام‌الوحش لمّا * تفرّع في ذؤابتي المشيب

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[1] Taj. and M.

[2] IM. reads this as ام‌الهُنَيبين which he explains as the pl. of هُنَيبِن which is the diminutive form of هِنبِر, and then explains the *kunya* (on the authority of Abul-Haytham) to be a كناية for something the mention of which is (or may be) regarded as indecent (يستفحش ذكرة).

[3] DhR., XLVI, 37.

[4] Ms., p. 227.

و ر د —وِرْدٌ; m. the arrival (on water): The hyena.

و ض ح —وَضَحٌ; m. milk: The sheep.

و ع ل —وِعالٌ; m. mountain goats: The hyena.

—وَعْلَةٌ; m. a mountain goat: The mountain pass.

و ف د —وافِرةٌ (and وافِرٌ): m. abundant property: The present world.

و ف د —الوَلَدُ; m. the son: A mother; and (in a law sense) a female who has borne a child to her master. (R.)

—الوَلِيدُ; m. the child: The hen. (Dmr.) (2) The food called المَضِيرةُ, which consists of meat cooked with sour milk.

و ه ب —وَهْبٌ; m. a gift: The domestic she-ass.

ي ع ف ر —يَعْفُورٌ; m. Ya'fūr: The bitch. The word يعفور (pl. يعافير) is explained by the commentators of Dhur-Rummah's Diwan as الظبي in two places.[1]

[1] DhR., XXXIX, 51 and LVII, 40.

SECTION V

URDU

QĀDI MAḤMŪD BAḤRĪ: A MYSTIC POET OF THE 12th CENTURY (A.H.) AND HIS POETICAL WORKS

BY

MUḤAMMAD ḤAFĪZ SYED

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[1] Nothing definite and reliable is known about the life-story of this author. I made inquiries from such scholars and authors as Lala Sri Ram, M.A., of Delhi, who possesses a rare collection of MSS. of Urdu literature and is the author of *Khum Khānaī Jāwīd*, Maulana ' Abdul Ḥaq, B.A., Secretary, Anjuman Taraqqi-i-Urdu, Aurangabad, Deccan, who is a well-known authority on ancient and modern Urdu literature and has a large number of MSS. of Urdu prose and poetry, and Professor Sheikh Abdul Qadir Sarfraz, M.A., of the Deccan College, Poona, who has a good collection of Urdu MSS. and is a sound critic; but none of them was able to furnish me with any authoritative information regarding Baḥrī's life.

Thus no external evidence is available on this subject.

Baḥrī was a resident of Gogī, which, as I learn from Maulana Abdul Haq, is a village near Wadi,[2] at a distance of a few miles from Shahpur Ta'alluqa in the Nīzam's Dominions, and his tomb is still preserved there, and an annual ' *Urs* is held in his memory on the 10th

[1] Naṣīruddin Hāshimī notices him very briefly in his " Dakkan men Urdu " (pp. 13-14): the only thing he has to say about him is that Baḥrī had an access into the court of Aurangzeb.

[2] A Railway junction situated in the Nizam's Dominions.

of Shawwāl, the date of his death, in the year 1130 of the Hijra (August 15, 1718 A.D.).

It was probably with a view to preserve the memory of his father Baḥrūddīn who was a Qāḍī of Gogī, that he adopted the *nom de plume* of Baḥrī. He himself was a spiritual disciple of Shāh Muḥammad Bāqir, but had received no literary education on traditional lines in any seminary. He was a contemporary of Walī, and marked similarities in language and style are found in Wali and Baḥrī's poetical works. Baḥrī did not learn the art of poetic composition from any poet of his time. He has used Sanskritic words more profusely than Walī. It appears that in his time in Bijapur and its neighbourhood Sanskritic words were more in use than Arabic and Persian words, and naturally the language spoken in Aurangabad was different from that in vogue in the Bījāpur District.

As he was an enlightened Sufi, he has frequently used such technical terms as are generally found in mystic literature of Islam.

Internal evidence allows us to glean a few facts of Baḥrī's life from various portions of the Mathnawī Man-Lagan, a detailed account of which will be given in the second section of this article.

On the reason of composing the Mathnawī, the author says that when he was four[1] years old, he was sent to a *Maktab* (a primary school). At the time of 'Bismillāh'[2] ceremony he was asked to begin with God's

[1] It may sound strange that Baḥrī was sent to the *Maktab* at the age of four but even unto this day it is customary among the Moslims to perform the Bismillāh ceremony at this very age.

[2] Bismillāh, lit. In the name of Allāh who is the most compassionate and merciful. Before a child, among Moslims is sent to a primary school, he is made to recite a particular verse from the Qorān and then he reads the Qaidā, a Persian or an Urdu primer. This ceremony is called Bismillāh or initiation into the Three *R's*.

name, he spontaneously spoke out Raḥmān and Raḥīm, the most merciful and the compassionate. He was sagacious and intelligent from his infancy. At this early age he felt the fire of love burning in his heart:

اس عمر میں عشق جیو میں جاگ
یوں گھیر لیا جیوں بھیڑ کو باگ

(At this age Love was awakened in me and overpowered me as a tiger does a sheep.)

آگ عشق کي دل مني لگي تهي
بهر تن میں تمام تك پكي تهي

(The fire of love had burnt in my heart and the whole body was affected by it.)

He did not, however, know what love exactly was.

یو عشق برا ہے یا بھلا ہے * یو دیو ہے بھوت یا بلا ہے
لڑکائي تهي مجهه اُپر مسلّم * بولوں تو یهي جو عشق کا غم
یا مجهه میں نوا ہوا ہے پیدا * یا جگ میں اول تي ہے ہویدا

(I did not know whether love was a *deva*, shining one, a ghost or a calamity. Childishness was in the full bloom and I had no other speech excepting that of Love. I was (wondering) whether it had been born in me for the first time or if it was in existence in this world from the beginning of time.)

He was in such a mood when his heart began to woo the Muse.

گر پنج كبیشیري نه آتي * والله یهه آگ مجهے جلاتي

(If I had not come under the influence of the Muse, God to witness, the fire of Love would have burnt me.)

Up to his fortieth year, he was dominated by this intoxication of Love and the poetic Muse. He had composed all kinds of poetry which he wrote in his mother tongue, ' Hindi.' Although he usually wrote in ' Hindi,'

yet he thought that Persian was more sweet in its diction and style.

His poetical works along with other valuable things, he had preserved in a big box which was stolen in Swabhagnagar.

When the chief of his town heard the news of this loss he sympathised with him and requested him to leave a treatise behind him, so that his memory might be preserved, for the human body was unstable and transitory. First he excused himself to him and said that he had grown too old and had no energy left in him. The chief insisted and said that although his (Baḥrī's) mind was enfeebled by old age, he should not mind about what he wrote : whether it was sense or otherwise. At last Baḥrī had to yield to the Amir's importunity, and made up his mind to compose the Mathnawī Man-Lagan, which would serve as a guide to those aspirants on the path who wished to lead the spiritual life and also prove a balm for the lacerated hearts.

میں کوٹھری چھوڑ بہار آیا * دالان میں آس ڈنی کے دھایا
جب برس چہار گئے گذر تب * آ سامنے مکھہ دکھایا مکتب
بسم‌اللہ مجھے کہے کہو ہاں * میں بول اُٹھا رحیم رحماں
اس عمر میں عشق جیو میں جاگ * یوں گھیر لیا جیوں بھیڑ کو باگ
آگ عشق کی دل منی دھکی تھی * بہر تن میں تمام تکپکی تھی
پن مجھکو سمجھ نہیں جویہ کیا * یو نار یو فاز یو نگہ کیا
یو درد سو کیا یو دل جلے کیوں * تن آنچہ سوں عشق کی گلے کیوں
لڑکائی تھی مجھہ اُپر مسلم * بولوں تو یہی جو عشق کا غم
یا مجھہ میں نوا ہوا ہے پیدا * یا جگ میں اولتی ہے ہویدا
چالیس برس یہی تھی مستی * یو شعر یو شاھداں پرستی
ہندی تو زبانچہ ہے ہماری * کہنے نہ لگے ہمیں کو بہاری
اور فارسی استی ات رسیلا * ہر حرف میں عشق ہے نہ حیلا
تھا پور جو یک بڑا پٹارا * سو بھاگ نگر میں کھوے سارا

هور اور تهي يادگار چيزاں * تس پر او چراے بے تميزاں
اس کهوے پرا کبهي کيتك بار * جو تها سو گيا پهر آپنے ٹهار
اس پنڈ کو نهيں هے پائداري * بارے رهے کچهه تو يادگاري
دي جسميں اچهے بيان بالا * سنسار کے هاتهه اك رسالا
بوليا که بڈهها هوا هوں بيهوش * ناتن ميں ترنگ نه جيو ميں جوش
ناپگ ميں هے جگ نه هات ميں هير * اب مجهکو رکهو معاف اے مير
بولے جو نهيں هے طبع پر بل * موزوں کو بسار بول مهمل
اس بات کو جب کچهه يك ديا گوش * تب من ميں ليا يهه من لگن جوش
دستور عمل هے عاملاں کوں * دارو هے دکهي پڑے دلاں کوں

From the chapter "On the Eulogy of Emperor Aurangzeb," it appears that Baḥrī lived in the time of Aurangzeb whom he pays a very high tribute of praise and considers him a unique king the like of whom was never born. Baḥrī is of opinion that he was a versatile genius, having command not on one subject only, but on ever so many branches of knowledge. Aurangzeb was religious, brave and wise and conquered almost every part of India and did his religious duties to the fullest:

اك ملك نهيں جو اُن ليا نهيں * اِك نفل نهيں جو اُن کيا نهيں
ايسا نه هوا کسي شهاں ميں * ناں بلکه بڑے مشايخاں ميں
جس ناؤں اهي ابوالمغازي * سلطان اورنگ زيب غازي
ديندار دلير اور دانا * يك علم نا سب منے سيانا

From the section entitled "In Praise of Maulana Sheikh Muhammad Bāqir" it may be gathered that Baḥrī was a spiritual disciple of Maulana Sheikh Muhammad Bāqir. As is usual with a disciple Baḥrī has extolled his spiritual teacher to the seventh sky and thinks him to be the beloved friend of God and the agent of the Prophet. He considers him a supernatural being full of Divine wisdom. If Bāyazīd Bistāmi were alive, he would have drawn his inspiration from Muhammad Bāqir. Baḥrī earnestly

implores his teacher to open his spiritual vision and to guide him on the Path.

مولا کے محب نبي کے نائب * مانس نہیں مظہرالعجائب
ساگر ہیں سبوي معرفت کے * بل عین ہیں نور معرفت کے
اس دور جو با یزید ہوتے * مل شیخ سوں مستفید ہوتے
ترلوك أپر تري امیري * در حال کرے تو دستگیري
سب چھوڑ پکڑ پڑا ہوں کونا * یا پیر تو دستگیر ہونا

Under " complaint against the Times "[1] he gives us an idea of the moral state of society in which Baḥrī was born.

Baḥrī says that the age in which he was living, was the 12th century (A.H.) when unrighteousness was exalted and righteousness was almost extinct. In his time there was dearth of veracity and uprightness. If there was anything sorely needed in his time it was an honest man, and justice had departed from this world. There was none who was imbued with true faith. A brother was at daggers drawn with his own brother and sense of shame had disappeared.

Baḥrī considered himself an unlucky person for having been born in such a hard time.

اے بھائي یہہ بارھویں صدي ھے * نیکي کو دبا بدي بدی ھے
ھے آج تو قحط سال ست کا * چھت گیا ھے دھرم سوں دل جگت کا
اس دور منے جو ھے کمي کا * دبلا ھے دیانت آدمی کا
دھرتي پہ ادھرم ادك ھوا ھے * امرت کے بجاے بکھہ ھوا ھے
اك جیو پہ درد دین کا نیں * اك دل پہ اثر یقین کا نیں
نا جائي کو مائي کا بھروسہ * نا بھائي کو بھائی کا بھروسہ
نا شرم کي خو ھے یك نیں میں * نا دھرم کي بو ھے یك بدن میں
اس ھول میں تو ھوا ھے پیدا * اس ڈول میں تو ھوا ھویدا

[1] In most of the Persian and Urdu Mathnawīs every poet devotes some space on the complaint of time. So has Baḥrī done. It should not be taken too literally.

From the story giving an account of Baḥrī's life, a few more facts can be gathered. Though they do not throw much light on his life-story as the caption leads one to suppose, they at least indicate his desire to undergo higher spiritual discipline and his relation with his Master.

One night he saw in a vision that his spiritual teacher initiated him into the mystery of the Divine Wisdom; he saw light all round him and in all the nine heavens (نوگهنڈ), he witnessed a sort of a mental illumination. After this experience, he implored his teacher to instruct him in some kind of spiritual discipline which should not only elevate him but make him utterly forget himself. The teacher replied that he (Baḥrī) should watch his life day and night, and see what a strenuous life he was leading. Baḥrī was advised to contemplate on his Master till he had realized that his Master's thought had completely dominated him and he (Baḥrī) existed in him (Bāqir), just in the same manner as the finer body exists in the physical. This discipline is called (pertaining to the growth of soul) and should be practised every morning and evening. This practice developed pure Lōve in him, and up to the time of his writing this treatise, he was at the sweet will of Love; he helplessly went whithersoever it took him. The fire of Divine Love burnt so intensely in his heart that he completely forgot himself, and his one ruling desire was to attain union with his beloved (supreme Being). Up to the age of 90, his Love had not been perfected. At the age of 90 he felt that if he had not developed the power of devotion he would have been as devoid of pure love as a boy of ten.

He who knows what true devotion is, he alone is capable of realizing the essential features of the object of his love. He also felt that without true love no spiritual discipline was of any avail.

حضرت کئے مجھکو یکشب ارشاد * او شب نہ تھے سرتے یك سب ارشاد
چو بھید اُ تھا انوپ امانت * تسکے دئے مجھ کچھك پچھانت
یك جوت دسیا سکل یو بر منڈ * یاہ نور دسیا تمام نو کھنڈ
اس بعد کیا دھني سوں بنتي * انتي نہ کروں تو بول کنتي
اے پیر ا پس کرم سوں غائت * اِك شغل کرو مجھے عنائت
جس شغل میں ہوے جیو سمد جوش * چھك جاے مجھے جو مست مد ہوش
فرمائے کہ مجھکو دیکھہ دن رات * گر سہل ھي دن و گر کٹھن رات
یوں رکھہ تو اپسکے تن میں مجھکوں
تنہا چہ نہ تن میں من میں مجھکوں
اس شغل کو بولتے ھیں روحي * یو صبح سنبھال یو صبوحي
ھر عضو اُپر ھزار زاري * ھر بال پہ لاك بیقراري
بن یار نہ کوئي اور ھے یار * بن دوست نہ دوسرا ھے غمخوار
اب لگ ھے وھي جلن وہ ھي جاج * یو عشق جدھر لیگیا اُدھر کاج
ھے عمر مرا نود برس کا * بن عشق مرا برس ھے دس کا
جن عشق کون کچھہ پچھانتا ھے * معشوق ھے کیا سو جانتا ھے

In the concluding portion of the book, he remarks that he completed the Mathnawī Man-Lagan in 1112 (A.H.) and frankly owns that he was not conversant with the art and the technique of poetry. He had not learnt any lesson from any teacher, he had not enjoyed any scholar's or poet's company, nor had he travelled in distant lands to gain experience. He spent all his life in the village of Gogī. His father Baḥruddīn was a disciple of Burḥānuddin Awliyā Chishti.

میں شعر تو بول جانتا نیں * یو پت نپت پچھانتا نیں
مجھکو نہ سفر سبق نہ صحبت * گو گي منے کي یو عمر اکارت
یك حرف مجھے نہ کن پڑھایا * ڈالي چھاڑیا نہ چھر چھرایا
جس فی المثل انمتے ادل پان * دیویں تو سری سو شاہ برھان
تھا باپ مرا مرید اُس گھر * اس گھر سوں کیا اپسکوں گوھر
اس گھر سوں مجھے بھي بندگي ھے * مجھہ جیو میں جوت ھوچکي ھے

He has left behind him a Diwān of Ghazals, a Mathnawī entitled the Man-Lagan already quoted in the preceding pages, and a poem entitled Bangāb Nāmā. I have in my possession a MS. comprising all these three works of Baḥrī which I shall henceforth call (A) ; unfortunately there is no colophon that could have helped in determining the date of the copy. Another MS. which I shall henceforth call (B) comprising only Man-Lagan has been kindly placed at my disposal by Maulānā 'Abdul Ḥaq. It is dated 1250 (A.H.). I have also been able to find an old printed copy of the Man-Lagan which for the sake of classification I call (C). It was printed at Madras in 1771-2 (A.H.). It ends with the following words:—

الحمدلله کتاب من لگن بتاریخ بست هشتم رمضان المبارك
سنه ۱۲۷۱ هجري در مطبع عظیم الاخباریه اهتمام هممام جناب منشي
غلام حسین صاحب بزیور طبع مزین گردید -

This is followed by a chronogram composed by the scribe:—

ازیں دوگنجینۂ حقائق نقد ✻ پایه عارفاں بود مرفوع
گفت سالش دلم ز روے ثبات ✻ منطق و من شود لگن مطبوع
۱۲۷۲ هجري

Man-Lagan is rather a long Mathnawī and takes 110 pages of (A), 144 of (B), and the printed copy (C) consists of 223 pages of 17 lines each.

The various sections or chapters are divided as follows:—

1. The Mathnawī opens with a heading which should have run something like اول توحید neither of the two MSS. however, notes it and (C) is unfortunately incomplete in the beginning and nothing can, therefore, be positively said about it. What seems most probable is that it has

no heading at all. It dwells on the unity and the glorification of God.

2. The same subject is continued under the heading توحید دیگر

3. The eulogy of the Prophet Muḥammad

در نعت خواجهٔ کائنات محمد رسول الله علیه الصلواة والسلام[1]

4. Of the ascension of the Prophet

در بیان معراج شفیع امت صلی الله علیه و سلم[2]

5. In praise of Muhammad Bāqir Qādirī

در منقبت مربینا مولانا حضرت شیخ محمد باقر قادري نور مضجعه[3]

6. Eulogy of Emperor Aurangzib

در مدح بادشاه دین پناه سلطان اورنگ زیب غازي

7. The reason of composing the Mathnawī

سبب تصنیف ایں رساله[4]

8. In complaint of Time

در شکایت روزگار[5]

9. On admonition and exhortation

در وعظ و نصیحت[6]

10. A story from his spiritual patron

حکایت از حضرت مربی[7]

11. In search of the Absolute Being

در طلب حق مطلق[8]

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[1] B. محمود احمد محمد مصطفی صلی الله علیه واله و سلم
In C the first few pages are missing.

[2] B and C. در صفت معراج

[3] B and C. در منقبت مولانا شیخ محمد باقر نورالله مضجعه در مدح مرشدي

[4] B and C. در سبب تصنیف رساله گوید سبب تصنیف ایں رساله

[5] B adds غداریکا after روزگار

[6] B. در باب وعظ و نصیحت مي فرماید

[7] B. مربینا نورالله مرقده

[8] B adds گوید after مطلق

12. A story. [1]حکایت

13. A story on showing consideration to dervishes

[2]در رعایت درویشي

14. A story [3]حکایت

15. On the glory of man [4]درفضیلت انسان

16. A story [5]حکایت

17. A story [6]حکایت

18. A description of the phenomenal world, etc.,

[7]در کیفیت موجودات وغیرہ

19. A story [8]حکایت

20. On Divine Existence, etc.

[9]در بیان وجود ملکوتي وغیرہ

21. A story [10]حکایت

22. On the secret (mystery) of three shining pearls, etc.

[11]در بیان سہ گوهر تابدار گوید

23. A story [12]حکایت

24. Wisdom, wise men and their union (with God)

[13]در بیان تنزل ذات و دانش و بینش و صاحب بینش و وصل

25. A story [14]حکایت

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[1] B. حکایت في تمثیل

[2] B. حکایت داریشے دررعایت درویشے

[3] B. دلیل في المثل

[4] B. درفضیلت بنیان إنسان

[5] B. حکایت سبیل في المثال

[6] B. دربیان عرفان میفرماید ; C. درکیفیت موجودات وغیرہ

[7] B. درکیفیت صفات موجودات وغیرہ ; C. حکایات

[8] B. حکایت برسبیل تمثیل گوید

[9] C. حکایت

[10] B. حکایت في المثل

[11] B. گوهر تابدار می فرماید ; C. دربیان روح و

[12] B. حکایت بردلیل تمثیل ; دربیان روح

[13] C. حکایت

[14] B. حکایت برسبیل تمثیل

26. An account of a story of Soul.

در بیان حکایت روح[1]

27. On some secrets of heart and soul.

در بیان چندے از اسرار دل و نفس[2]

28. A story حکایت[3]

29. A story حکایت[4]

30. On light, memory, forgetfulness, invisible sound and secret corner

در بیان نور و یادوفراموشي و آوازغیبي و خفی کنج[5]

31. A story حکایت[6]

32. On men endowed with Divine wisdom

در بیان صاحب عرفان و نبوت و ولایت و نظر صاحب نظران[7]

33. On real and unreal death.

در بیان مرگ مجازي و حقیقي[8]

34. A story حکایت[9]

35. A story حکایت[10]

36. On Love در بیان عشق[11]

37. A story حکایت[12]

38. The end of the book. خاتمه کتاب[13]

It will be seen from the variations noted below that these MSS. differ in the order of certain chapters. Besides this

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[1] B. دربیان اسرار بیخودي و ذکر منصورانالحق But C here gives دربیان فتوح روح

[2] B and C. حکایت

[3] B. دربیان چندے از اسرار دل و نفس

[4] B. دربیان صاحب عرفان و نبوت و ولایت C. حکایت برسبیل تمثیل

[5] B brings دربیان اسرار بخودي عاشق و ذکر منصور انالحق here. C. حکایت

[6] B. دلیل تمثیل C. حکایت

[7] B. دربیان نور و یاد فراموشي و آواز غیبي و خفي

[8] B. دلیل بر سبیل تمثیل C. حکایت

[9] B. دربیان صاحب عرفان موت و ولائت و نظر صاحب نظر

[10] B. دلیل بر تمثیل

[11] B. دربیان مرگ مجازي و حقیقي گوید

[12] B. حکایت

[13] B. حکایت دربیان سماع سرود و کشتگان به شمشیر سرود

(B) has following chapters which are not found in (A), (C) with the same headings as in (B):—

(۱) حکایت فی‌المثل در مجلس سماع حضرت جنید بغدادی قدس سره (۲) در بیان عشق گوید (۳) حکایت سر گذشت خود گوید (۴) در خاتمه کتاب گوید

THE MAIN THEME OF THE MATHNAWĪ

Ordinarily one particular theme is developed in a Mathnawī. A thread of unity runs through it. But in the Man-Lagan no one subject is delineated. The subject-matter of the Mathnawī is Islamic mysticism (Tasawwuf). The author, instead of dwelling on one subject and treating its various aspects, has chosen to write on a variety of subjects such as Search for Reality, Self-Effacement, Excellence of Man, Love, Music, etc. It is true that every mystic deals with these topics whenever he has to write anything on mysticism.

The Mathnawī is replete with deep touches of exalted mysticism. The opening and closing lines are most significant:

اے روپ ترا رتي رتي ہے * پربت پربت پتي پتي ہے

O, ye, thy universal form is manifested in every atom, in every hill and dale, who is all-pervasive.

کر اصل پہ چت نہ چھاوں اوپر * کر ختم خدا کے ناؤں اوپر

Set your heart on the supreme Reality and not on shadowy (substances); bring your book to a close in His name.

The first step in mystical life is تزکیہ اخلاق (Purification of morals) in other words it means good moral character, elimination of baser emotion and human vice such as falsehood, pride, harmfulness, slander and gossip.

Bahrī like other Sufi teachers enjoins on an aspirant[1] the practice of Self-control, treading the path of virtue and ceasing from evil ways.

He lays great stress on the cultivation of tender human feelings, truthfulness, guarding one's tongue, self-confidence, harmlessness and a strict sense of justice.[2] Having acquired these qualifications the neophyte is expected to occupy himself with Divine contemplation ; and is lastly reminded to bear in mind the fact that the outer material universe is not everything and one's lifetime is not to be squandered in the mere pursuit of one's livelihood.

کچھہ خوب نہیں یہہ بے لگامي * لے کچھہ بھی توپکتگي نہ خامي
ھاں خیر کو چاہ چھوڑ دے شر * یو خیر یو شر ھے تاکہ محشر
رکھہ نیت اول آپس کي نیت * آپس کي سنبھال آدمیت
مت کھول اگر جو کھولنا ھے * تب کھول جو سانچہ بولنا ھے
یك جھوت سوں دوجھاں لرزتا * دھرتي سوں مل آسماں لرزتا
غیبت نکو سن مري نباتي * غیبت کو برا رکھے زناتي
گر کوي تیري سوں رنج پایگا * تو ھات میں ھي سوگنج جایگا
پر رہ نہ پکڑ سرا کسي کا * نا آس نا آسرا کسي کا
یو ظلم فنا بقا ھے انصاف * ھر بات کو بدرقہ ھے انصاف
ھر بھانت بچن اُپر اُڑا دھول * اللہ کے کلام سوں ھو مشغول
اُس ناں کے تیں ھوا ھے لت پت * سب عمر اسي رھت میں گئي گھت

Bahrī's teacher once told him that in his long span of life of about a century he devoted all his time in asceticism and spiritual discipline, and learnt only two notable lessons: (*a*) contentment, (*b*) relinquishment. He also learnt that one's livelihood is not in the hands of any

[1] In the section on Admonition and Advice.

[2] It may be noted here that these very qualifications are demanded by the ancient Hindu scriptures from one who is keen on spiritual development: cf. Achāra, Bichāra, Viveka, Vairāgya, Shat sampatti and Mumukshutva.

of his friends or acquaintances but it depends on one's own sustainer, the Almighty God. If a man is to befriend anything, it is Dharma (righteousness). If there is anything worth endearment it is wisdom (عرفان) in the light of which this world is really a garden (as fresh and green as a garden).

نا دوست نه یار آشنا پر * ہے رزق ترا ترے خدا پر
ہوتا ہے جو دوست دھرم کا ہو * ہو نا جو شریك شرم کا ہو
ہونا تو عزیز بس ہے عرفان * جس تیم تي یوسکل گلستاں

Discussing the perennial topic of the search of Reality the mystic-poet rightly remarks that " many days of his existence are over, only a few are remaining, it would be in the fitness of things if he were to attach his affection to his beloved." In other words it is high time for him to devote his time and attention in the pursuit of the supreme Being who sheds His light on dark and obscure corners and sustains both a thorn and a flower.

The man who turns his back against the Beloved and renounces Him for the human *fiance* is not worthy of his existence, whereas one who is centred in the Beloved deserves to be what he is. It is better to make friendship with that Friend who is a true friend of one's friend and foe. The seeker after Truth is directed first to know himself: who he is and what he really is. If he is truly in quest of Divine mystery he should not be hopeless and have firm faith in His grace and compassion. He is also enjoined to make a good use of his present life and not to get himself entangled in this world.

وہ پیو جو پالتا ہے کل کوں * کانٹے کو کرم کرے جو گل کوں
جي من جوپیاسوں موکھہ موڑیا * پر پنچھ لیا پیا کو چھوڑ یا
اس من نہ کھوں او من نہ دن ہے
اس من کو کہوں جو من مُہن ہے

اس دوست تي دوستي رکه اے من
جس دوست کوں دوست دوست دشمن

يعني تو آپس پچهان بارے * تو کون هے کيا سو جان بارے
رکهنا نهيں گر جو توں هے بهيدي
رحمت سوں خدا کي نا اميدي
يوں عمر کهيں هے تو کهيں هے * اس عمر کي تجهه قدر نهيں هے

EXCELLENCE OF MAN

The pivotal doctrine of every system of spiritual speculation is the solidarity of man. Man is not a mere speck of dust, here today and gone tomorrow. The Sufis, the Vedantists, in fact, all mystics believe in the immortal nature of man. In his physical form he is subject to birth, growth, decay, senility and death, but the permanent substance in him is the self, Atma, ego, soul, by whatever name it may be called. It is perpetual and unchanging.

Like other mystics, Baḥrī says that although a man is born in a mortal body which is fragile and perishable and has many physical relations such as father, mother, uncle, aunt, brother and sister, yet in reality he is not bound by any of them. He is immortal and eternal in his essence. Man is the glory of God and lord of creation. He is the source of all sacred books. He is neither body nor the lower self, nor the illusory world, but his position is intrinsically higher than all these.

يو جگ هے جديد آدمي آد * اس گهرکو يو آدمي هے بنياد
اس آدمي بيچ کيا کمي هے * سد گيان کی صورت آدمي هے
تها آدمي آد ميں مکرم * اب کيا تو کهو طلسم اعظم
يو بيد پران اے سگهڑ من * سب من سو تيرے هوے هيں اتپن

The end of man is neither death nor the day of resurrection. He is ever the same. He is neither sun nor moon. He exists eternally with the word of God.

آیا نہ کہیں سوں جاھے تاں ھیں * اِك دشت پلیت درمیاں ھے
انجام کھے تو اے برادر * نا مرگ اسے ھوسکے نہ محشر
یعني نہ یو شمس نا قمر ھے * اللہ کے امر سوں امر ھے

DIVINE WISDOM: GNOSIS

It is a necessary part of mystical writings to dilate upon the value and importance of 'Irfān.

Baḥrī has devoted eight pages to this subject. He says that what is called 'Irfān in Arabic, the Indians call it Gyan (Jñāna).

کھتے ھیں عرب اگرچہ عرفاں * پن ھند کے لوگ بولتے گیاں

It is through divine wisdom that a man is able to perceive the right value of things. Whether this Gyan is hidden or manifest it has its own uses.

He who gets an insight into Divine wisdom, is able to understand all other sciences and arts of the world.

It is this wisdom alone through which a man can unravel the secrets of earth, sky, mountain and heaven. This wisdom is found in the sacred scriptures and is acquired only by one who has some insight into higher life. If you are a far-seeing man you should love nothing but wisdom. The moment wisdom dawns on human mind, it renounces the desire of things earthly. True love and devotion is the outcome of Divine wisdom.

In every age only a few wise men (Gyānis) have attained true wisdom.

یو گیاں گپت یوگیان پرگھت * کیتا ھے یوگیان کہر کھتي گھت
یو بید پران شاستر گیاں * ابا آچھو بھرتے آستر گیان

اس گیان کو گیان هي رهاوے * اس گیان کو گیان هي کهجاوے
گیانی هو تو گیان کو پگڑ خوب * گیاني هے محب تو گیان محبوب
گیاني ملے جب یو گیان آوے * ویران کرے آپس بساوے
اے عشق تو کاں گیا شتاب آ * ات کرم هو جیونکه آفتاب آ
هر دور میں ایك دوج گیاني * اس گیان کو پهوڑ کر پچهاني

People living in various other planets also look upon the acquisition of true knowledge as the one aim of their life and the angelic beings also pay their homage to it. Not only men but all invisible beings surrender themselves to the dictate of this wisdom.

یوں گیان هوا فلك کوں مقصود * یو گیاں هوا ملك کوں مسجود
آدم کي اگے نه سردهري او * اس گیان کو سب سرن کري او

THE INVISIBLE SPIRITUAL EXISTENCE

The existence of a supernatural and invisible world within and apart from the earthly existence, is recognised by all mystics. Bahrī also accepts its reality and says that the finer planes of man's beings dwell in the outer tabernacle of the flesh as kernel or pith and marrow is encased within an outer skin or shell. The invisible or finer, subtler body of man is ancient and the physical one new. The former is vital and strong and the latter weak and feeble. Death and sleep have no control over it. The physical body is unclean, whereas the finer one is pure and clean. Only through devotion and absorption one is able to work consciously in that body. Deep down the subtler body there is another body which is called *Karana*, causal, it is the subtlest of all.

ایدوست او تن جو سکشمی هے * کیچهه بول جو جیو میں جمي هے
نا موت کو اس ستے مروت * نا نیند کو اس اوپر هے قوت
میلا هے یو تن اوصاف سمجهو * اس تن کو یو تن غلاف سمجهو

او ديهه قديم يو نوي هے * يو ديهه ضعيف او قوي هے
اس سول کے بيچ اور کارن * برزخ سوتوسو کشم بهي هاں گن

WISDOM, WISE MEN AND THEIR UNION WITH GOD

Baḥrī says that true wisdom lies in discerning unity in diversity. In milk, curds, butter, and butter-milk, the same essence is pervading. Similarly, the One supreme Being is present in every form. A truly wise man is absorbed in the source of his being as sugar is dissolved in water. In every beautiful being and in every good action, He is manifested. Without and apart from Him there is nothing that exists. The Divine wisdom is neither new nor old nor does it grow more or less.

هر کار منے هے نور اس کا * هر يار منے ظهور اس کا
يو گيان نوا هے نا پرانا * هوتا نه ادك نه کم هو جانا
الله سون کل نبی هيں شکر * تو جان کرو کون گلشکر کر

On the Conquest of Soul.—The beauty and glory of the world consists in the existence of the soul. Human spirit is the ruler of the physical body. Human soul is like a mirror which contains an image of the world in its fold. If one has an insight one can perceive its excellence. He who has ever seen the beauty of the Self, in his eye, the attraction of a damsel dwindles into insignificance. The essential nature of the Self is understood by the supreme Being alone.

اس روح تے هي جگت کو رونق * بهرام سواويو جيون کي خورنق
اس پنڈ پتن کو روح راجا * پت اسکوں نظر نه دوسرا جا
يو جيو تراذچه أئينه هے * سب اسميں جو تجهه معائنه هے
ديکها هے جمال جيو کا جن * پهيکا هے کمال پيو کا تن
جس بهيد کهيں سواو هے والا * جاني وه هي ايك حق تعالى

The Secrets of Self.—Man's heart is God's highest abode and is also a favourite resort of the Prophet.

The beloved (God) ever dwells in our heart, why then does it yearn for Him?

Man's higher self is beatitude and it is also a manifestation of supernal glory. Man's heart is the happy abode of God, and it is the light of the Prophet's glory. The human soul is endowed with knowledge and insight and it is ever alive. If the Self were not in existence, whence the mountain and the sky would have come into being?

In whatever condition a man may be, he should not be untrue to his own self.

او دل که جو عرش هے خدا کا * منظور نظر هے مصطفی کا
مادام او دست دل میں بستا * یهه کیا جو دل اوس لئے ترستا
یو جیو جمیل تن هے تائب * یو من اهے مظهرالعجائب
من کیا تو محل هے خوش خدا کا * من نور هے پاك مصطفی کا
جگ جام منے یو من هے جیومد * من عین حقیقت محمد
دانا هے یو دل سو روح بینا * اس نفس کے تین لکها هے جینا

THE SECRET OF LOVER'S ECSTASY AND MANSŪR ANAL-ḤAQ

The personality consisting of body, mind, and the senses is always considered by every school of mysticism to be a hindrance in the way of union with God, as man is spirit in essence and shares Divine nature. So it is necessary that one who aspires to tread the Path should gradually transcend his lower self before he can be vouchsafed Divine vision. The higher ego of man is one with the supreme. Those who realize their spiritual nature and grow to their full stature, instinctively cry out that they and He are one. This is what Baḥrī calls the secret of ecstasy and anal-ḥaq.

اس وقت میں بےخودي سو ہے کا * یو خود نہیں نور ہے خدا کا
گرمجھکوتو پوچھتاہےکچھ پند * تو لے یہہ خودي خدا کي سوگند
جس خاص خودي سوں آشنا ہے * تس پاس خودي نہیں خدا ہے

On men of illumination and their spiritual insight Baḥrı says that their marks are unique and numerous ; their ways and habits are quite different from those of the conventional people. They live in Him as the causal body is impenetrated in the finer and the finer in the physical. They are the devoted friends of God and the beloved of the Prophet, and universally loved by all. They are stable-minded, alike in hardship and comfort. They never demand anything from anybody ; nor do they expect people to pay any respects to them. They are free from suspicion. Their attention is always turned towards their beloved (God). Verily the saints and sages never die. The lamp of their existence is never extinguished by wind. They see only one life vibrant in every atom, beyond Him they recognise none.

پورا جو ہوا ہے گیان جن کا * تت کر جو کیا کمان جن کا
ہیں انکي علامتاں بھي نیارے * اس راہ سوں رسم سوں کنارے
سپنا چھپي جاگرت کے تن میں * ہورونچہ لےجا گرت سے من میں
کارن رہے سو کشم سوں مل جھول
استھول میں جیو نکہ پیت میں سول
نا ان منے تاو ہے نہ تازا * اک جانتے ذام اور کزازا
کس پاس نہ دان مانگتے ہیں * مانس سوں نہ مان مانگتے ہیں
نا لاگ رہي نہ چھوز دیوي * مکھہ اُنکا یار طرف مروزي
مرنا نہیں سچ ہے اولیا کون * لگتا نہیں باد اس دیا کون
میں توسوں ہےتونہیں تومیں نیں * بن دوسرے یوں کلادیگا میں
کر آپسے حق کي ذات میں محو * نا بول بیچار بات میں محو

On Music and its Overpowering Effect.—He who has made music his friend, he is, believe me, verily a saint. Music not only causes fire to burn, but it also tears tigers

into pieces. Physical maladies are driven out by the wholesome effect of music. Music awakens Divine love in man's mind. Every one is influenced by it, more especially those who are already smitten by love.

It creates dispassion. Its price is renunciation. It melts stone, and turns black charcoal into sparks. Music is the food of soul and also of the Beloved.

The world is entertained by music. It adds to the beauty of the world. It is the favourite pastime of kings. It keeps the soul ever fresh and it helps to unravel mysteries and remove obstacles.

He who is uninfluenced by music should better be consigned to fire. He is no man at all, he is merely flesh and bone. He may be taken for steel and stone. Music enhances pain caused by Divine love. It is this that augments man's yearning for Him.

جن راگ کو دوست کرلیا ہے * توں بوجھ او بیشك اولیا ہے
یو راگ نہ آگ ہے جلاتي * یو راگ نے باگ پہاڑ کھاتي
یو راگ سوں روگ تن تي بھاگے * اس راگ سوں بھوگ من میں جاگے
ہر تن کو لگي یو راگ آلا * یو جیو جلیا بکي دل دوبالا
بیراگ لاؤتا ہے یو راگ * اس راگ کون مول کیا تو بیراگ
یو راگ خوراك جیو کا ہے * یو راگ خوراك پیو کا ہے
اس راگ سوں رنگ ہے جہاں کو * اس راگ سوں سنگ ہے شہاں کو
اس راگ سوں رشد روح کو ہے * یو راگ سبب فتوح کو ہے
جس جیو کے تیں نہ راگ لاگے * تس جیو بھلا جو آگ لاگے
مانس نہیں مانس ہاڑ ہے او * پولاد پتھر پہاڑ ہے او
اس راگ سوں جوش درد کو ہے * ہور اونچہ خروش مرد کو ہے

GHAZAYYAT [1]

Altogether there are 111 ghazals in this collection. The theme on which Baḥrī has written is, as is usual with

[1] From Arabic غزل literally meaning making love to women; an ode; a sonnet; an amatory poem. It is used here in the plural, meaning collection of sonnets.

this type of poetry, love both human and Divine. Some of the couplets of the *ghazals* deal with purely mystical topics such as God, His Love, Union, renunciation of earthly desire, submission to the Divine will, etc. There are other couplets which seem to have double meaning, namely temporal and spiritual. There is nothing unusual about Baḥrī so far as the treatment of these sonnets is concerned, as practically all the mystic-poets of the Persian language on whose model Urdu poetry had evolved, have composed amatory poems bearing double meanings.

The fifth *ghazal* which is the only one of its kind in the whole collection, is undotted (بے نقط). Out of the 32 Persian letters of the alphabet 15 are undotted. It is no small task to confine oneself to only unpointed letters numbering 15 and compose couplets of a *ghazal* as Baḥrī had done when the art of Urdu poetry was in its infancy. It clearly shows the poet's unusual command of the language and its stock of words. The *ghazal* is quoted *in toto*.

غزل نمبر ٥ - محمد گر مدد هوگا همارا * سکل دکهه درد دهوگا همارا
اگر صحرا هو ملدام هوردد * او سارا دام دد هوگا همارا
اگر عالم سکل آکا عدو هو * تو الله الصمد هوگا همارا
کرم اسکا دس آکا کم هو هرگاه * اگر کولا اسد هوگا همارا
موحد کا معما کهول محمود * او احمد گر احد هوگا همارا

In one *ghazal* he hints that he is intending to leave his home but feeling home sick, he changes his mind. In fact he claims to love his home as much as *Nala* loved *Damana*:

بحري کو دکهن يوں هے که جيو نل کو دمن هے
بس نل کون هے لازم جو دمن چهوڑ نه جانا

He would rather give up the joys of his stay in 'Iram (Paradise) than take leave of his hearth and home

گر کوئي بخشتا ہے بلاکر ارم انعام
بلبل کے اچھے من میں جو بن چھوڑ نہ جانا

He is so deeply devoted to his spiritual teacher, Muhammad Bâqir, that he mentions his name with the same rapturous zeal as a young man does at the mention of his sweetheart. In one place he says:—

نہ بکري چھوڑے شہ[1] کے قدم کو
ہے جب لگ چگ میں سورج کا اُجالا

It seems that the thought of his teacher has completely obsessed him.

In one *ghazal* he owns his sinfulness and recounts his evil doings. In his utter despair he invokes the blessings of his teacher without whose merciful intercession and timely help he feels he will be undone. But this confession of remorse and consciousness of his frailties, should not be taken literally. Almost every pious soul whenever he has to write anything, out of humility, owns his unmerited faults lest he should be guilty of spiritual pride which is considered to be the most reproachable of follies.

As is usual with Persian and Urdu poets, our author uses his poetic name Baḥrī in the last couplet of every *ghazal* but in pursuance of the *Dakhani* convention like most of the poets of that country, he has frequently changed his poetic name.

It is true he uses "Baḥrī" oftener than not but he does not hesitate in changing it to Maḥmūd, his personal name, as in

موحد کا معنا کہول محمود ✻ او احمد گر احد ہوگا ہمارا

[1] شہ literally means king, but here it refers to his spiritual teacher.

In some *ghazals* he is compelled by exigencies of metre to use Baḥriā (بحریا) a form which though not unusual with Persian poets as in Sādi

سعدیا حب وطن گرچه حدیث است صحیح
نتوان مرد به سختي که من اینجاز ادم

is not favoured among Urdu poets; for instance he says:

اس فنا میں جي بقاکا بهید هے سو بحریا
جیوتي مرکے سوجیا اُس مرجیا کو پوچهنا

In the last couplet (مقطع) of one *ghazal* he most skilfully combines both the *nom de plumes* of Baḥrī (بحري) and Maḥmūd

محمود کون بحري جو لقب هے یارب : (محمود)

As a rule Baḥrī dwells on mystic themes as he is *par excellence* a mystic poet, but in his *ghazal* not unoften one comes across with mundane topics and human love as well ; for he frankly confesses that human love is only a ladder through which he has climbed to the height of Divine Love. It was love alone that has enabled him to develop one-pointedness and helped him to rise above the diverse and multifarious forms of this bewildering phantom called the world. Says he:—

منجهه اس مکتب مجازي میں جو عشق استاد نا هوتا
تو مرے دل سوں کثرت کا سبق برباد نا هوتا
جیوں کو ماٹي میں ست اس من کو نیچا یاسو تونچه
آد مورت پرورش پانے کون مں معدن هوا
تن کو کهو اس من میں، من هونا یکا یك مفت میں
جیو اپنے جیو کوں ماٹي ملایا من هوا

Beyond these there is nothing worth mentioning in the *ghazal*

MARTHIĀS

There are four Marthiās in this collection. None of them deals with the tragedy of Karbalā (which is the main theme of elegy) in detail beyond a passing reference to the martyrdom of the Imām Ḥussain Ibn-'Alī. One Marthiā is wholly devoted to describing the value of the festival of Moḥarram. In the beginning Marthiās were written in quatrains or four verses called *Chau Misra* (چو مصرع) later on they were developed into the form of a *Mussaddas* (verse consisting of six lines, hexameter). Baḥrī unlike the early poets who introduced 'elegy' into Urdu poetry has written his *Marthiā* in the from of a *ghazal* or a modern *salām*: The opening and closing lines of a *Marthiā* are as follows:—

یو محرم کیجھه آج کام کیا * سواو کیا جگیه شك حرام کیا
شه سوں پایا شفاعت اے بحری * جب توں یو مرثیا تمام کیا

A few more lines of another *Marthiā* will be found interesting:—

جب شاه کے و جود مبارك په غم هوا
تب سب جهاں تے حرف خوشي کا عدم هوا
پیغمبراں میں جونکه محمد سوں ختم هے
یوں غازیاں میں شهکي عزا سوں ختم هوا
جیکوي دلمیں شاه کي غم کا نهال لایا
او دل یقیں که حشر کوں باغ ارم هوا
بحري مدام شاه کي ماتم میں یوں گلے
جیوں چاند آسمان په گل گل کے کم هوا

Another opening line of a *Marthiā* is,

دل جو معمور نهیں شاه کي غمسوں سو خراب
بول اُس دل جوهي اس آگ میں جم جیونکه کباب

QAṢĪDĀS

There are only two *Qaṣidas* in this collection, and both of them are written in praise of Sheikh Muḥammad Bāqir. The last line of the first *Qaṣida* is the most significant:

سچ کہنا سچ میں رہنا * سچ سہنا سچ میں بہنا

There are three tritrains (سہ مصرع or مثلث) in this collection. One of them is quoted below to give an idea of what it is like:—

مرشد میرا مجھکو حق کے مارگ لایا
حق کے نظرسوں شاہ اپنا منجی حق سمجھایا
دو تن تھا سو دورکر حق میں ہو سمایا

THE BAṆGĀB NĀMA

No other poet (as far as the writer is aware) seems to have used *Baṇgāb* for meaning spiritual intoxication. The usual term among Sūfī poets is شراب (literally wine). The explanation for Baḥrī's choice of " Baṇgāb " may be the spiritual use made of this drink by Shaiva devotees among whom Baḥrī may have been placed, and it shows our author's broadmindedness, and friendliness towards his neighbours.

In the twelve " cups " or stanzas of this poem the words Bang and Bangāb are frequently used. The word Bang is Persian, its Sanskrit equivalent is *Bhānga*. It is an intoxicating herb (*Cannabis Sativa*). When a drink is prepared of its leaves with water and other ingredients, it is called in Persian ' Bang.' When drunk it has intoxicating effect. Esoterically ' Bang ' stands for eternal Divine wisdom and the Absolute Reality who is the uncaused cause, the first Principle of everything inner and outer. The only way of attaining knowledge of this reality is

whole-hearted devotion, complete self-surrender to Its will and absorption in It. Now this absorption is brought about only by means of self-effacement which in its turn is caused by the intoxication of Love (Divine).

If these distinctions are borne in mind, the meaning and purport of this exquisite poem will be fully and clearly understood.

The *Bangāb Nāma* consists of twelve stanzas each of which is termed a jām (a cup) after the analogy of Bangāb.

JĀM I

What is known as Baṇg is علم قديم (ancient knowledge, wisdom) and Love (Divine) is resident in it like its effect (اثر). In the اثر (effect) resides گوهر هستي (the pearl of life). It is like *jôt* (light) of the essence of Love. From this 'Bang' comes آدم صفي (Adam) in whom Bang has made full effect. Bang is a trust (امانت) and not an expression (اظهار) and is visible in *Baṇgāb*.

JĀM II

Bang is the king and this royalty is given to it by God Himself (of course metaphorically). It contains the very essence of the moral teaching, so that *Baṇgāb* is the guide and teacher of all.

JĀM III

Baṇgāb is exhaustless and is abundant, but it is not in the lot of every one to obtain it. Make your obeisance to the fountain-head of *Baṇgāb*, for if you could possess even a small portion of it, rest assured there would be nothing hard or difficult which you could not surmount. By virtue of this Divine gift, you may take it, that if you live, you have nothing but nectar in your hands ; if you die, even this death is as good as life eternal. It is

not right to conceal its all-absorbing effect. It has been in existence from time immemorial.

JĀM IV

Bang is endowed with seven qualities, five of which are the five senses which enable us to do everything and acquire the knowledge of the external world. All the outer phenomena owe their existence to it. It is futile to argue about this knowledge. Do not entertain any doubt about its existence or utility. Proclaim it to be above and beyond everything outer.

JĀM V

Bang stands for the Primeval Reality. There was a time when *Bang* was free from *Baṇgāb* and was mightily self-satisfied and pleased with Its own Self. It was when there was no Tablet and no Pen, nor even a sky. When there was no sign of manifestations He was all in all.

Bang the unmanifest Reality gradually gave rise to the outer phenomena from which everything pertaining to higher and lower beings came into existence (in the form of Bang, Love and ecstasy without which no one can rise to the height of his maker).

JĀM VI

Taking the instance of Bangāb which is externally green and internally red, the poet draws a parallel from *Ḥena* the green leaves of which give to the sweethearts' hands a red colour. In other words he means to convey that outer appearances are deceptive: what seems to be real is unreal and *vice versa.*

JĀM VII

The real Bangāb is Light (اللہ نور السماوات والارض) and fills up the cup of 'Irfān (Divine wisdom). The whole

universe is the manifestation of this *Bangāb*. From one colour of it proceed millions of colours. The same Bangāb is all-pervading. Both the seer and the seen owe their allegiance to It. The seeker and the sought are its standard-bearers. In its absence the human spirit is restless, perplexed and bewildered. No realization is possible without it.

Jām VIII

Subordinate all your aches and joys, longings and hankerings, thirst and hunger, to one ruling desire for Bangāb. In other words everything earthly is to subserve higher life without which nothing vital is possible of attainment.

Jām IX

Human love is a means to the perfection of Divine Love, for in the sphere of *Bang* only two things are really worth trying for: the sweetheart and the Bangāb. One who does not possess a *fiancê* and *Bangāb* lives always in agony. Therefore it is necessary to be a lover.

Jām X

Bangāb is useless without music, for it is music which lends it colour. Some people hold that music is forbidden by religious law but those who assert this are not aware of the true fact that music brings them nearer to the Reality. A diseased mind cannot enjoy music. Only one who is touched with love can appreciate it.

Jām XI

All power, all might we owe to Bangāb alone. Those who have taken to Bangāb have given up everything for its sake. All their knowledge is drawn from

it. A distinction between false and true is made only by virtue of it.

JĀM XII

Sheikh Muḥammad Bāqir, that great traveller on the road to Essence, is a mighty being in the ocean of Baṇgāb. He is the most lovely cup-bearer in the drinking party of Bangāb and the best gardener in the garden of Bang. Whomsoever he gives a cup of Bangāb waxes red like the tulip. He has divulged all the secrets of the Bangāb. He has preached the gospel of *Bangāb*. It is he who has expressed Bang in terms of *Bangab*. It is he who has unearthed the great treasure trove. In the end the poet winds up the Baṇgāb Nāma with these lines:—

چھوڑیو سب طرز توں تسلیم ھو
پگ تلے تسلیم کے جیوں میم ھو
جیو کو بنگاب پلا شاد رکھہ
دل سوں ھو درویش دل آزاد رکھہ
عمر سب اس کیف کے پینے میں کھو
ھاں نہ عبث کو دری سینے میں کھو
اب توں تنك آپے کرتار سوں
سونپ آپس آپني کرتار سوں
ھوش کے بنگاب سوں مدھوش آچہ
ختم کر اس بات پہ خاموش آچہ

Some peculiarities of the script employed in this MS. deserve notice:

Three dots were placed under ك to make it گ in imitation of Turkish usage. Similarly in ز instead of putting " ط " on it in Baḥrī's time they used three

dots underneath it as چھوٹے and four dots on ت to make it ٹ as ٹاٹ.

The madd of الف ممدودہ is often omitted for instance آدمي - آج - آگ etc., are written as آدمي - آج - آگ

According to the cherished practice[1] of those days we frequently meet with composite script comprising at least two words in one منجھوں - دھاڈمیں - آپسکي are only a few instances taken out at random from the pages of the MSS. They should have been written as منجھہسوں - آپسکی-دھیان میں. The letter چ (as also چھ) signifying the modern ءي is generally joined to the previous word. There is no distinction made in the use of these two forms of the uni-consonantal words.[2] In one place بسم اللہ is written as بسملہ, according to the exigency of the metre employed. The word سچ is variously written as سچ and سچہ . The writer follows the old habit of Persian scribes in inscribing the letter gāf as ك and گ . In the same manner, no distinction has been made in the vocalised nūn (ن) and the nasal nūn (ں) for no such distinction was ever made in those days.

The language of Baḥrī's works is pure and chaste *Dakhani* of the old type and is indeed an excellent model of it. Naturally, therefore, we come across numerous words of Sanskritic origin. The whole work is replete with words and expressions of this type. A knowledge of Sanskritic language is necessary to understand him. The following few examples will give an idea of what is meant:—

سکل	सकल	All.
ارت	अर्थ	meaning.
ادك	अधिक	more.

[1] This continues even today among the scholars of the old type.

[2] سبب تصنیف ایں رسالہ (A).

دل	दल	army.
سرگ	स्वर्ग	the heavens.
تربهون	त्रिभुवन	three worlds.
سیس	शीर्ष	head.
سهس	सहस्र	thousand.
ستهول	स्थूल	gross, coarse (physical).
سوکشم	सूक्ष्म	fine, subtle.
کارن	कारण	cause ; causal (as an adjective).
نوکهنڈ	नवखण्ड	nine sections (of the world).
دهرت	धर्ति	earth.
سیوک	सेवक	servant.
پرجا	प्रजा	subject.
ناد	नाद	sound.
آد	आदि	ancient ; eternal.
جیو	जीव	soul, self, a being.
پران	प्राण	life-breath.
دیا	दया	kindness.
بچن	वचन	word.
آس	आस	hope.
آکاش	आकाश	sky.
سنسار	संसार	world.
ساگر	सागर	big river, ocean.
مانس	मनुष्य	man.
پربت	पर्वत	mountain.
ات	अति	most.
انت	अनन्त	endless.
جوتي	ज्योतिः	lustre, light.
مت	मत	opinion.
پرپنچ	प्रपञ्च	, (the manifold) world.

بِنڈ	पिण्ड	body.
بِبھج	भज	worship.
باڑی	वाटका	house, garden.
سنیہ	स्नेह	friendliness.

Some striking lines from the Mathnawī:

What is called 'Irfān by the Arabs, the people of India call it Gyan (Jñāna).

You are worried for the sake of bread. The whole of your life is worn out in the same rut.

All the Vedas, and Puranas, O pure mind, have been produced by Thee.

You are neither lower self nor body nor illusory world māyā.

Your rank is higher than these.

The beginning and the end of things is the Self within, within and without he alone exists.

The two worlds, earth and heaven shiver when any one tells a lie.

Every religion has *Dharma* (moral law) and the law of *Dharma* is one and the same. However variant the texts may be the meaning is one and the same.

Forsooth, the saints do not die. Wind does not put out the lamp of their existence.

O, Brother, you should not be led away by mere words ; if you reflect a moment, you will understand them better. Leave the words alone, and look to the underlying meaning.

For the present, it is hoped, these pages will suffice to introduce Baḥrī's poetical works to the sudents of Urdu literature. In view of the fact that it may prove of some value to the future workers on the history of Urdu language and considering its literary importance, I propose to edit and publish it in due course of time.

SCIENCE

SECTION III

ZOOLOGY

NOTES ON CERTAIN PECULIARITIES IN THE VENOUS SYSTEM OF AOREA SEENGHALA SYKES AND AOREA AOR HAM BUCH

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INTRODUCTION

While undertaking the comparative study of the circulatory system of the Indian Siluroids, especially of those species that live in fresh water, it was observed by us that some of these fishes were rather peculiar, so far as their venous system was concerned. As the main work is still in hand, only two of these fishes—Aorea seenghala Sykes and Aorea aor Ham Buch—have been worked out in detail and form the subject-matter of this communication.

The material for the work was obtained locally. About twenty examples of each species were carefully dissected and studied, but on account of the difficulty of obtaining these fishes alive, injections of the entire venous system could not be made, although, where dissections were not very clear, partial injections were resorted to, in order to verify the result. The injection mass used was of the following constitution:—

Water (distilled)	...	...	100 c.c.
Glycerine	...	...	20 c.c.
Formaline 40 per cent		...	20 c.c.
Powdered corn starch		...	75 grams
Carmine or Methylene Blue		...	10 grams.

We wish to express here our gratitude to Dr. D. R. Bhattacharya, Dr. Beni Prasad and Lt.-Colonel R.B.S. Sewell for very kindly offering criticisms and for correcting the MS. of this paper.

THE VENOUS SYSTEM

The Caudal Vein.—The single caudal vein runs, as usual, in the hæmal canal, and at the junction of the tail with the trunk enters the posterior portion of the kidney, which in this region is not divided into the right and the left halves. The caudal vein gives in succession four branches to the kidney (Fig. 3, R.P.). A little further anteriorly, it gives two small branches (Fig. 3, T.C.1) to the right posterior cardinal vein (Fig. 3, R.P.C.), thus forming direct cross connections between these two big veins. On its outer side in the same region the caudal receives a vein from the pelvic fin of the right side (Fig. 1, P.V.) and a few segmental veins (Fig. 1, S.V.) from the body wall. A little beyond this region it becomes directly continuous with the hepatic portal vein (Figs. 3 and 4, H.P.V.) and extends forwards to the liver, taking a more or less sinuous course ventral to the air-bladder (Fig. 1, A.B.). In its course posterior to the spleen (Fig. 4, S.) the caudal vein establishes a further connection with the right posterior cardinal vein (Fig. 4, T.C.) by means of four minute transverse vessels which curve round the right border of the air-bladder. These connections can be made clear by injecting the caudal vein and have been sketched separately (Fig. 4, T.C.). They could not be shown in Fig. 1, as the air-bladder (A.B.) obstructs the view. In its onward course the anterior extension of the peculiarly formed hepatic portal vein passes through the spleen (Fig. 1,

S.) receiving blood from that organ by means of a pair of small vessels, the splenic veins (Fig. 1, S.P.V.). Shortly after emerging from the spleen it receives a thick prominent vessel (Fig. 1, I.V.) bringing blood from the coils of the intestine, and a little further forwards, it receives a vein from the adipose tissue contained in the mesentery (Fig. 1, M.L.1). The latter vessel arises in the substance of the fatty tissue by a system of anastomoses from which a second branch emerges forward to join the hepatic portal vein at its anterior end (Fig. 1, M.L.2) and a third (Fig. 1, M.L.3) from the anterior end of the left lateral vein (Fig. 1, L.L.V.). Thus a curious cross-connection is established between the anterior and posterior ends of the hepatic portal vein through the agency of a system of veins passing through and carrying blood from the fat bodies. The hepatic portal vein pours its blood into a characteristic semicircular vein which we propose to call the hepatic portal loop (Fig. 1, H.P.L.). This loop is formed by the confluence of independent vessels, the hepatic portal vein and the two lateral vessels from the sides of the body (to be described later) and those from the stomach, the duodenum, etc. The loop lies close to the posterior border of the liver and gives off short wide branches to the two lobes and a larger branch to the right lobe of the liver.

The Renal Portal Veins.—In addition to the four branches of the caudal vein in Aorea, several prominent segmental veins of the left side open into the kidney. On the right side, on the other hand, the minor segmental veins, situated in the posterior region only, pour their blood into the kidney, whereas the bigger ones which are situated a bit more anteriorly open into the hepatic portal extension of the caudal vein. Thus we see that the renal portal system in Aorea has a twofold origin and receives a substantial contribution of blood from the body-wall

directly, but a comparatively smaller amount from the caudal vein.

The Lateral Veins.—Another very peculiar feature of these fishes is the existence of the right and the left lateral vessels (Fig. 1, R.L.V. and L.L.V.). The left lateral vein arises by the confluence of the pelvic vein and a few segmental veins. All these unite together, and the common vein thus formed runs along the outer margin of the kidney. This vessel is in intimate association with the kidney-mass and can be made prominent only by injection. It also receives a few minor branches from the kidney (Fig. 1, R.C.). In its forward course in the lateral wall of the abdomen it lies immediately outside the peritoneum and receives a large number of segmental veins (Fig. 1, S.V.). These segmental veins opening into the lateral vein are irregularly distributed. They are in a double series—one opening into the lateral vein from the dorsal side, the other from the ventral. The segmental veins of the two series appear to be paired at some places and alternate at others. A corresponding lateral vessel (Fig. 1, R.L.V.) exists on the right side, but unlike its fellow of the opposite side, it does not originate in the pelvic region but commences near the posterior end of the spleen and slightly anterior to the kidney as a branch from the hepatic portal extension of the caudal vein. Near the posterior tips of the two lobes of the liver both the lateral veins leave the body-wall and run transversely in the pericardio-peritoneal septum finally entering into the hepatic portal loop (Fig. 1, H.P.L.). In Aorea seenghala Sykes and Aorea aor Ham Buch the blood from the greater portion of the abdominal body wall is poured into these two longitudinal lateral vessels by a series of small segmental veins and then carried to the liver. In addition to these veins from the body-wall the left lateral vessel receives blood from the gonad of its side

by three or four small veins (Fig. 1, G.V.) and also from the pelvic fin of its side (Fig. 1, P.V.). The right lateral vein receives comparatively fewer genital veins, the majority of the latter opening into the hepatic portal vein.

The Posterior Cardinal Vein.—The right posterior cardinal vein (Fig. 4, R.P.C.) arises from the kidney as a thick trunk. This is connected with the hepatic portal vein, both behind and in the region of the air-bladder and is continued forwards to the head-kidney (Fig. 2, H.K.). The left cardinal vein, on the other hand, arises from an anastomosing system of capillaries and small veins which are connected with the kidney, the right cardinal vein and the fatty lobes. Anteriorly, this vessel assumes the form of a single trunk but is considerably thinner than its fellow of the other side (Fig. 4, L.P.C.). This disparity in the size of the two cardinals is a characteristic feature of Teleosts in general. The two veins run parallel to each other on either side of the vertebral column, and during their forward course traverse the head-kidney of their respective sides from where they receive a few minute branches. These branches become prominent after injection. The two cardinal veins, though so disproportionate in size before entering the head-kidneys, emerge out of this organ as veins of proportionately larger size and of nearly equal calibre. Before joining the ductus Cuvieri they receive the inferior jugular veins (Fig. 2, R.J. & L.J.). The blood from the pectoral fin is collected by two blood-vessels ; of these one is the anterior sub-clavian vein and the other is the posterior sub-clavian vein (Fig. 2, A.S.V. & P.S.V.). The anterior sub-clavian vein pours its blood into the right anterior cardinal vein. The posterior sub-clavian vein pours its blood into the head-kidney.

Veins Anterior to the Heart.—The blood from the floor and the neighbouring parts of the mouth and a part

from two pectoral fins is collected into a thick median vessel which is really a continuation of the anterior cardinal vein. This vessel (Fig. 2, R.A.C.1) runs just dorsal to the ventral aorta. Close to the base of the bulbus aorta it is joined by a small thin vessel arising from the muscles in the neighbourhood of the left ductus Cuvieri. This vessel is found lying in a position which the left cardinal vein would have occupied if it had existed. At first sight one might mistake it for the reduced left cardinal vein, which is absent in these fishes. The fact however that it does not empty itself into the heart, and joins the anterior cardinal of the other side close to its origin, appears noteworthy. But, in two out of a large number of specimens of Aorea seenghala examined by us the right cardinal was found to be absent, its place having been taken by a similar vessel on the left side, so that in these cases the usual condition was reversed. We thus find that in most of these fishes it is only the right cardinal that persists in the adult stage, and the corresponding small vessel on the left may represent the vanishing anterior cardinal of that side, which has lost its connection with the ductus Cuvieri and now carries the blood forward. Another interesting peculiarity in connection with the anterior blood-vessels is that the inferior jugular veins bringing blood from the brain, the eye-balls, and other neighbouring parts do not join the anterior cardinals. The two inferior jugulars run parallel to each other within the cranium, from which they emerge by separate foramina in the otic region. In their backward course also, they run dorsally and pass beyond the ductus Cuvieri of their respective sides and finally open on the inner side of the corresponding posterior cardinals slightly anterior to the head-kindney (Fig. 2, R.J. & L.J.). Thus the blood from the brain, the eye and the roof of the buccal cavity, is mixed up with that brought by the posterior cardinals from the posterior part

of the body, before it is taken to the heart. In these fishes there are found two minute sub-clavian veins. One (Fig. 2, A.S.V.) runs as usual anteriorly and opens into the anterior cardinal vein ; the other (Fig. 2, P.S.V.) takes a backward course and passing through the head-kidney joins the posterior cardinal vein.

DISCUSSION

Caudal Vein.—From the above account of the caudal vein in Aorea three facts become prominent:—

(1) The direct continuity of the caudal vein with the hepatic portal vein.

(2) The tendency towards the abortion of the direct and primitive connection between the caudal and the posterior cardinals.

(3) As a result of the continuity of the caudal with the hepatic portal vein, the diminution to a certain extent of the comparative importance of the renal portal system.

Though the condition and the course of the caudal vein in Aorea is in a general way the same as described by Mackenzie (7) in Amiurus catus, yet certain differences may be noted with interest. The origin of the caudal vein itself in Amiurus catus is due to the union of two vessels of unequal size in the tail fin region. In both these Siluroids the caudal vein runs forward as the hepatic portal vein. Mackenzie in his account of Amiurus catus remarks that this condition was not described in any other Teleost except in the fish he worked on. He further states that Nicolli and Hyrtl deny the existence of this condition in any Siluroid other than Amiurus catus. According to the last two authors the entire caudal vein distributes itself to the kidney as the vena renalis adrehens. On the contrary, we have noticed this course not

only in Aorea, but also in the majority of the Indian fresh-water Siluroids, notably in Clarias magur, Wallago atto, Silundia gangetica, Pseudotropius garua and Bagarius yarrelli. The only exception we have met with being Rita rita, in which the caudal vein divides into the right and left renal portal veins.

It has been explained that in Aorea the caudal vein is connected with the posterior cardinal vein by four minute loop-like vessels.

Hence, only a very small quantity of caudal blood has a chance of reaching the heart directly through the posterior cardinal vein. The minuteness of these vessels suggests that this direct course is on the path of degeneration and elimination. In Amiurus catus, in fact, we do not find any such connections between the caudal and the cardinal vein. If the direct continuity of the caudal with the cardinal is regarded as a primitive feature, Aorea then is less specialised than Amiurus catus so far as this point is concerned.

Thus in the two species of Aorea under discussion only a part of the caudal blood goes to the heart directly through the right posterior cardinal, a part of it goes to the kidney, but the major portion goes direct from the caudal vein to the so-called hepatic portal vein which opens into the liver, and may well be considered as the most important of the three courses of the blood from the tail.

Coming to the renal portal veins we notice a great divergence between the condition seen in Aorea and in Amiurus. In the latter the caudal vein gives out two branches in the kidney which form the right and the left renal portal veins, but in Aorea there are four such branches. The renal portal system in Aorea also receives a good contribution of blood from the segmental veins coming from the body wall, in the kidney region. Judg-

ing from the minute size of the renal portal branches of the caudal vein it may be inferred that only a small amount of caudal blood is poured into the kidney.

The existence of the lateral veins in Teleosts does not appear to have been noted by any previous worker. On the other hand, Bridge (3) definitely denies the existence of a " representative of the great lateral vein of Elasmobranch " in the Teleosts. We feel more or less certain, however, of the existence of these lateral vessels not only in these fishes but also in some other Indian Siluroids, though they vary in their size and position. The important feature of these veins is that they differ from similarly situated vessels of Elasmobranchs both in their method of origin and termination. In Elasmobranchs they open into the Cuverian sinus, whereas in the Indian Siluroids, in which the vessels have been detected by us, they invariably open directly or indirectly into the liver. These lateral vessels are not present in Amiurus catus (7) and the blood from the body-wall is carried by the hepatic portal vein or by the cardinal vein. The blood from the gonads in this fish is invariably collected by the caudal vein. At this stage we are unable to throw any light on the origin and homology of these vessels ; but it does not appear to us improbable that they may be the precursors of the anterior abdominal vein of Dipnoi and Amphibians and may have some relationship with the lateral veins of the Reptiles described by Bhattacharya (2) in Varanus bengalensis and by Beddard (1) in certain other Reptiles.

Whatever may be the homology of these vessels, it seems quite probable that they have been evolved by the centralisation of the segmental veins from the body-wall. This course is certainly much shorter and quicker than the other course through the caudal, cardinal or renal portal veins. It appears to be a significant fact that these lateral vessels open into the liver instead of going direct-

ly to the ductus Cuvieri or to the heart. Somehow or other in these Siluroids the liver appears to have assumed comparatively greater functional activities than in other vertebrates, as it receives a plentiful supply of blood not only from the hepatic portal vein but also from the tail pectoral and pelvic regions, and abdominal muscles, etc. The opening of the lateral vessels into the liver goes a great way in favour of the suggestion that they may be the precursors of the anterior abdominal vein of the Dipnoi, Amphibia and Reptilia.

Posterior Cardinal Vein.—The disparity in size of the two cardinals is more or less a common feature among Teleosts, but their emergence out of the head-kidney in Aorea as prominent vessels of about equal size is a matter of interest. That the narrow left cardinal after coming out of the head-kidney acquires the prominently large size is a noteworthy feature. In Amiurus catus the disparity continues till the two posterior cardinals join the anterior cardinals to form the ductus Cuvieri. We are unable to offer any explanation for this peculiar feature without further study.

Anterior Veins.—The anterior vein in Aorea are markedly different from those of Amiurus catus or from other typical Teleosts. In Aorea we find only one anterior cardinal (usually the right) properly developed ; the other is degenerate and unconnected with the ductus Cuvieri. In addition to Aorea we examined a few other Siluroids such as Wallago attu, and Pseudotropius garua. In *Wallago attu* both the right and the left cardinals are present, the left being much thinner than the right one. In *Pseudotropius garua*, on the other hand, the right one has disappeared and it is the left only that persists. Certain other Siluroids have in the adult condition only one anterior cardinal which may be either the right or the left. In certain fresh-water Siluroids where both the

cardinals are present one is considerably thinner than the other. There seems therefore to be a tendency towards the elimination of the slender cardinal of one side as exemplified by the condition found in Aorea, where only one cardinal is present.

The opening of the inferior jugulars into the posterior cardinals is again a peculiar feature. Usually in fishes and higher vertebrates the blood from the brain and the eyeballs and other neighbouring parts is collected by vessels which open into the anterior cardinal or into the ductus Cuvieri but it is not carried to the posterior cardinal trunks. In Amiurus catus (7) the two inferior jugular veins unite together to form a single vein on the left side which opens into the ductus Cuvieri. Evidently the two anterior cardinals do not pass beyond the region of the ductus Cuvieri as has been noticed in Aorea. This disposition of the inferior jugular vein has been noted also in a few other Siluroids examined by us. In all these cases the blood from the brain, the eye and the roof of the buccal cavity is mixed up with that brought by the posterior cardinal from the posterior part of the body before it is taken to the heart—a phenomenon hitherto undescribed in any vertebrate.

SUMMARY

1. The caudal vein in the Siluroids examined, after pouring a very small portion of its blood into the kidney, and into the right posterior cardinal vein, becomes directly continuous with the hepatic-portal vein. The renal-portal system as such is naturally very poorly exhibited. Thus the greater part of the blood has to go to the liver instead of going directly to the heart.

2. Two lateral veins exist in the abdominal walls—one on each side of the body. They pour their blood into the hepatic portal loop and thus indirectly into the liver. By virtue of their position, origin, and termination, they appear to be the modified lateral veins of Elasmobranchs and may be the precursors of the anterior abdominal vein of Dipnoi, Amphibia and Reptilia.

3. There is a thick stout semi-circular vein called here the hepatic portal loop, occupying a median position behind the liver. This loop receives blood from the two big laterals, the hepatic portal vein, and certain small and independent veins from the stomach, duodenum, etc. It pours its blood into the liver by means of short thick branches.

4. The right posterior cardinal vein arises as a thick trunk from the kidney. The left posterior cardinal vein, on the other hand, originates from a system of anastomoses and capillaries. The former vein is several times thicker than the latter. Both the veins traverse the substance of the head-kidneys, but when they emerge from the latter anteriorly they are found to be more or less of the same calibre and size.

5. Only one, usually the right anterior cardinal vein, persists as a thick trunk, whereas the left one is more or less aborted. In two specimens the condition was found to be reversed.

6. The inferior jugular veins do not open into the anterior cardinals, but into the posterior cardinals immediately anterior to the head-kidney. They bring blood from the orbital region, the brain and other parts of the facial region.

7. The blood from the pectoral fins is collected by two sets of veins—(1) the anterior sub-clavian vein opening into the anterior cardinal and (2) the posterior sub-clavian vein pouring its blood directly into the head-kidney.

EXPLANATION OF FIGURES

Fig. 1 ... Fish opened from the ventral side to show the course of the caudal, the hepatic portal and of the lateral veins.

Fig. 2 ... Disposition of the anterior veins seen from the ventral side.

Fig. 3 ... Kidney dissected to show the branches from the caudal vein.

Fig. 4 ... Posterior cardinal after removing the air-bladder, the hepatic portal vein being shifted to the right side.

LETTERING

A.B. ... Air-bladder.
A.S.V. ... Anterior sub-clavian vein.
C.V. ... Caudal vein.
D.C. ... Ductus Cuvieri.
G. ... ... Gonad.
G.B. ... Gall Bladder.
H. ... ... Heart.
H.K. ... Head-kidney.
H.P.L. ... Hepatic portal loop.
H.P.V. ... Hepatic portal vein.
I.V. ... Intestinal vein.
L. ... ... Liver.
L.L.V. ... Left lateral vein.
L.P.C. ... Left posterior cardinal vein.
L.J. ... Left inferior jugular vein.
L.K. ... Left kidney.
M.L.1, M.L.2, M.L.3 ... Mesenteric anastomoses and loops.
P.C. ... Posterior cardinal vein.
P.S.V. ... Posterior sub-clavian vein.
P.V. ... Pelvic vein.
R.A.C. ... Right anterior cardinal vein.
R.A.C.1 ... Same in median position.

T.C. ... Vein from the tip of the kidney to the left lateral vein.
R.J. ... Right inferior jugular vein.
R.K. ... Right kidney.
R.P. ... Renal portal branches from the caudal vein to the kidney.
R.P.C. ... Right posterior cardinal vein.
S. ... ... Spleen.
Sp. V. ... Splenic vein.
S.V. ... Segmental vein.
S.V.1 ... Segmental vein opening into kidney.
T.C. ... Connections between hepatic portal vein and right posterior cardinal vein in the region of the air-bladder.
T.C.1 ... Same behind the region of the air-bladder.
V.A. ... Venous anastomoses.

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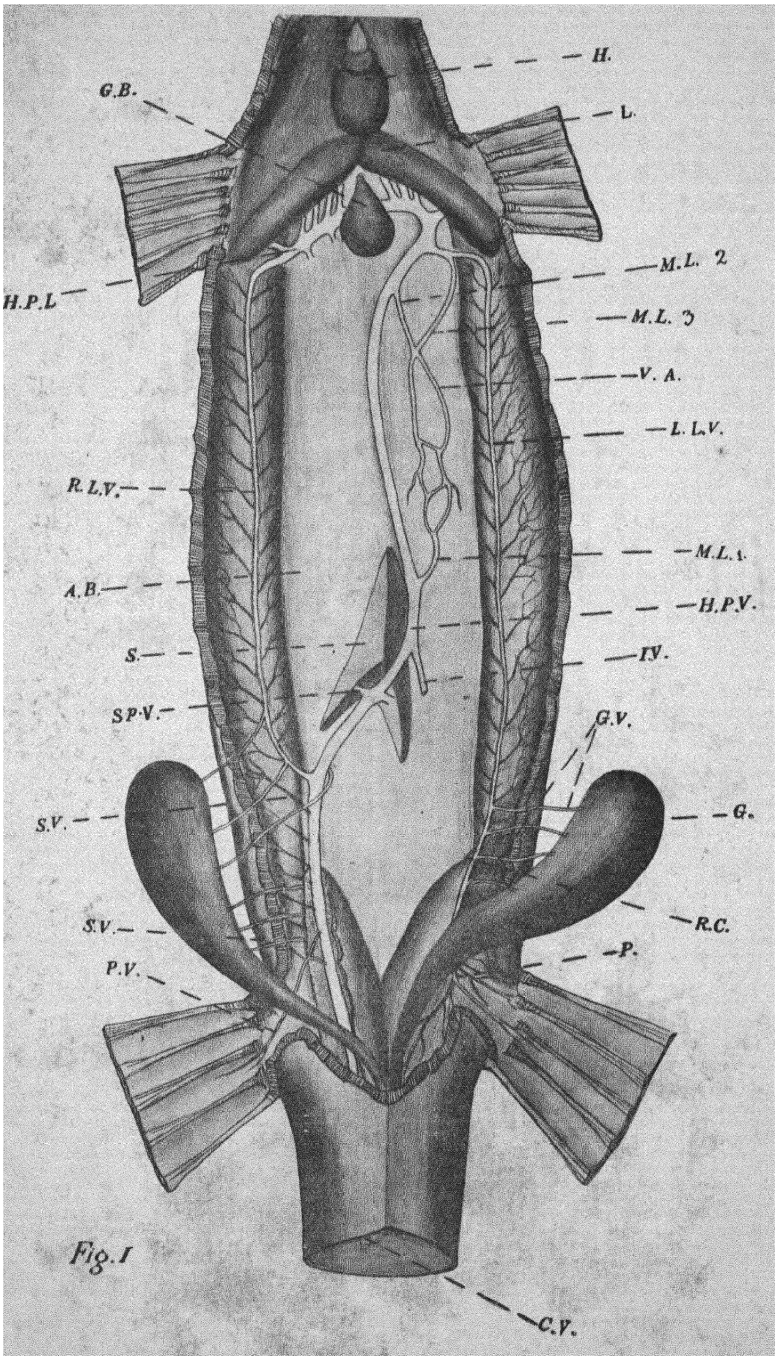


Fig. I

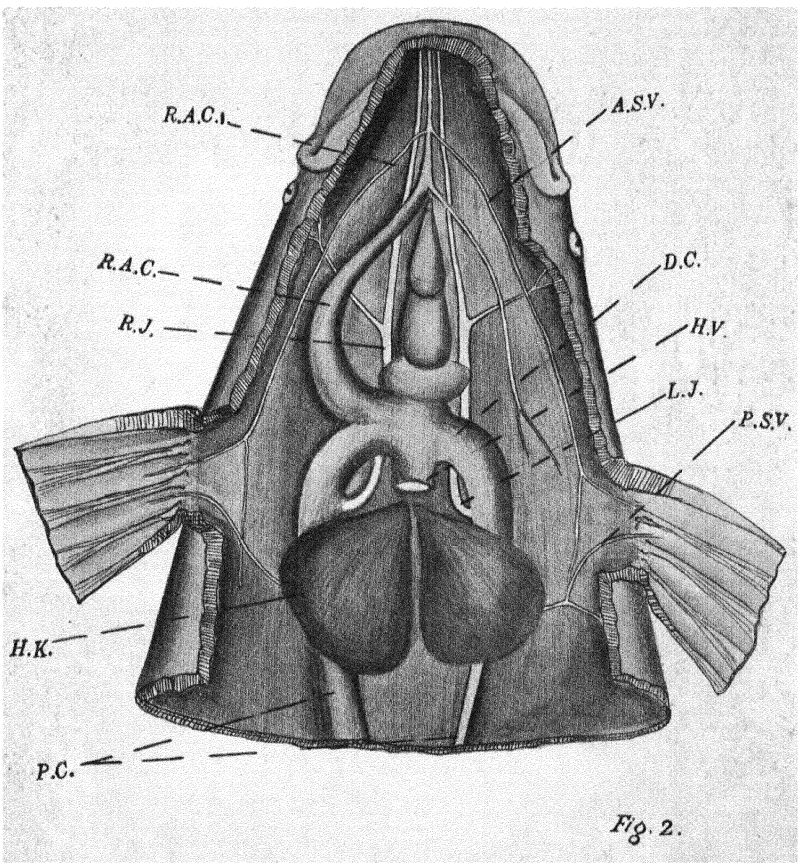


Fig. 2.

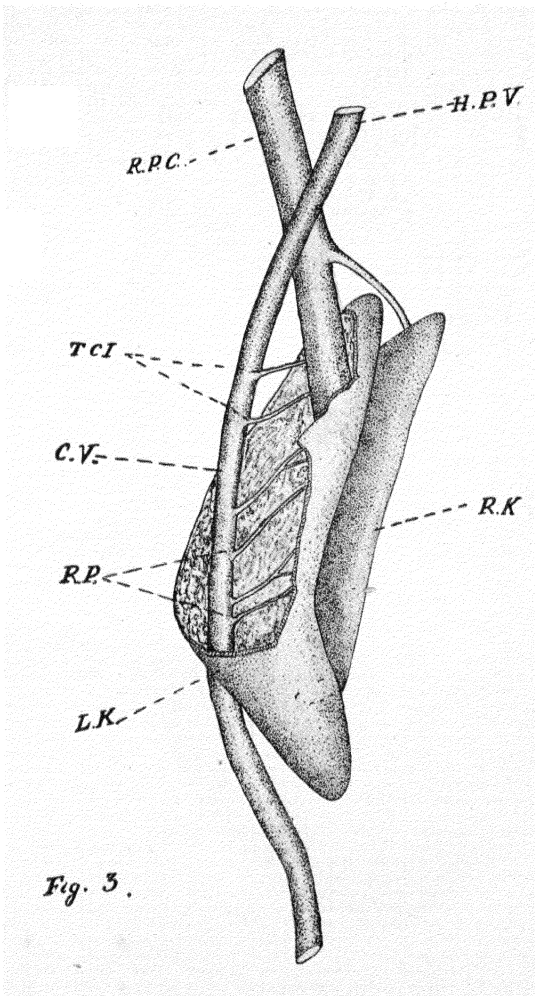


Fig. 3.

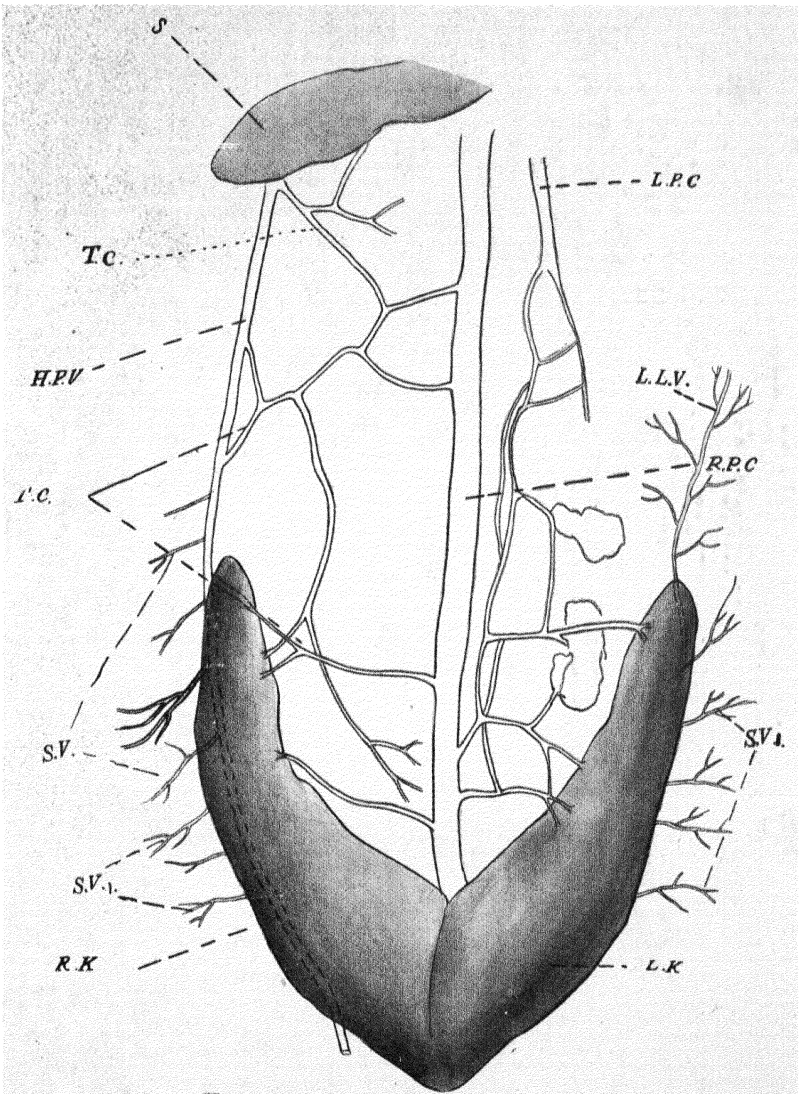


Fig. 4.