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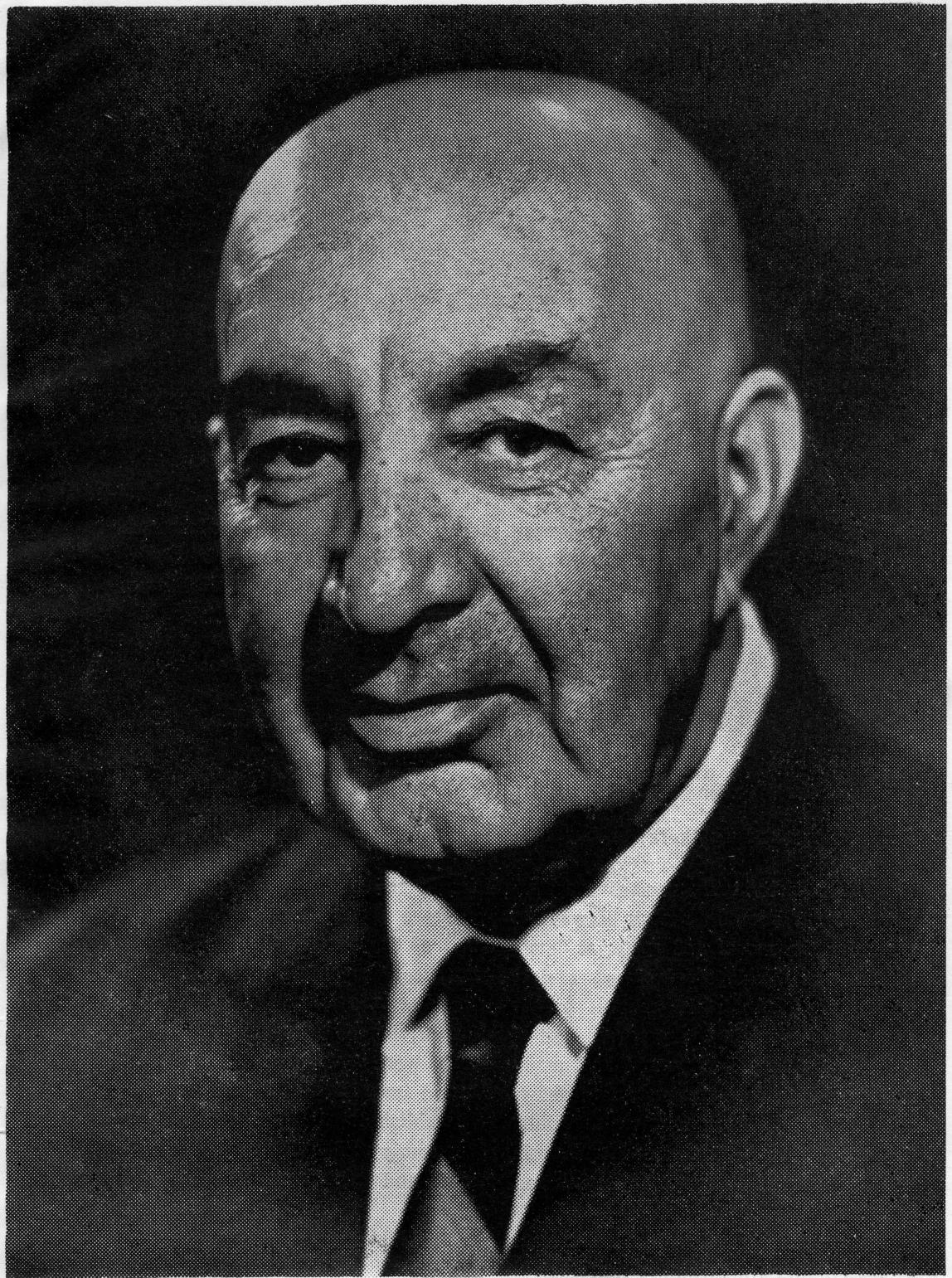
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Mohammad Daoud, the Founder of the Republic,
the President of the State and the Prime Minister of Afghanistan.



Proclamation of Republic

The following speech was presented by Mohammad Daoud, the President of the State and Prime Minister of the Republic of Afghanistan on July 17, 1973. It was delivered to the people as a proclamation of the founding of the Republic of Afghanistan.

The editors of AFGHANISTAN quarterly are happy to present contemporary history, recording this most significant event: the birth of the Republic.

In the name of God Almighty the Benevolent, the Merciful:

Dear Sisters and Brothers:

While discharging various responsibilities in the service of my nation I have always been in search of ways to provide a positive and real environment for the moral and material development of the people of Afghanistan, specially of the deprived classes and the youths of the nation, where all the people of Afghanistan, without privilege or discrimination might take a responsible part in the progress and building of the country.

A long time has passed and many efforts were made to overcome the factors, which as experience has shown, formed impediments in the gradual achievement of such a goal, especially to establish trustworthy security in the country to permit sound and positive economic and social changes in a healthy manner, to make the youth feel secure, and to curb superstition and reaction.

After passing through all those stages, I had no reason for not opening a new chapter for attaining that goal.

For the future prosperity of my nation I had not known and do not know of any other way except by establishing real and reasonable democracy based on the principle of service for the majority of the people of Afghanistan.

In my opinion the original foundation of such a social situation can be laid by attaining the complete rights of the people and by holding upright the principle of national sovereignty. At no time should these two principles, overtly or openly, be violated.

It was this holy desire that forced me to forward my and my friends' last proposal to the King ten years ago and ask for its implementation for the welfare and prosperity of the Afghan nation.

But the reason why that holy desire resulted in this anarchy in the country and why my weak colleagues did not follow the right path is a long story, the details of which cannot be presented in this brief moment. That story will be unfolded for my countrymen at an opportune time.

Anyway, the result was that those long cherished ideas changed to a false democracy which from the beginning was founded on private and class interests, and complexes as well as on intrigues, plots, falsehood ,and hypocrisy.

But all this false propaganda in these ten years could not hide the bitter facts which were tell-tales of the complete decline and bankruptcy of the country's economic, administrative, social, and political state for the people of Afghanistan and the world.

In short, democracy or the government of the people was changed into anarchy and the constitutional monarchy to a despotic regime. All these forces struggled against one another and the people, and in pursuing the principle of divide and rule, fire was lighted throughout the country.

So in this turbulent and dark atmosphere impregnated with misery, poverty, and misfortune they were able to attain their material and political ends.

The patriots wherever they were watched with deep sorrow and anguish this horrible state of their nation. But they were constantly aware of the situation, especially the Afghan armed forces who felt this agony more than anyone else exercising extreme patience hoping that today or tomorrow the vile and rotten system in Afghanistan would become aware of the misery of the nation and endeavour to reform itself. But the result proved that these hopes are impertinent, and the regime and system became so corrupt that no hope or expectation for its reform existed. Consequently all patriots, especially the patriotic armed forces of Afghanistan, decided to put an end to this rotten system and deliver the nation from their plight.

Dear Countrymen:

Let me inform you that that system has been overthrown and a new order which is the republican regime has been established which conforms to the true spirit of Islam.

My friends and I from the depth of our hearts congratulate you on this first republic of Afghanistan and consider it auspicious for prosperity and success of the country and its people.

I congratulate the dedicated Afghan army in all parts of the country, and all of you. I am sure you are aware of your duty, which is ensuring security and protecting the national sovereignty of Afghanistan.

The new order naturally has with it basic reforms, the details of which are not possible in this short time but our dear compatriots will be told about them in the near future.

Afghanistan's foreign policy will be based on neutrality, nonalignment in military blocs, and free judgment of the people of Afghanistan themselves.

Afghanistan's international policy has been formulated in accordance with the national desires of the country for the sound moral and material existence of our people.

From our national needs and aspirations it becomes clear that the attainment of our goals more than anything else is dependent on world peace, and no country can achieve its national wishes without peace. Since we, more than anyone else, are in need of endeavours for the development of our country, therefore we, more than anyone else, are desirous of peace and security in the world.

Hence the first pillar of the policy of Afghanistan is a desire for peace and friendship with all the nations and peoples of the world. In this wish no discrimination against any country or people whether near or far, big or small prevails with us. This independent determination stems from the wishes of the people of Afghanistan; the element which distinguishes the traditional non-aligned policy of Afghanistan is its clarity and frankness, manifesting the independence of Afghanistan's national determination.

Thus the ties of amity between Afghanistan and the friendly nations will persist on unshakeable foundations, and moves for their further expansion, and consolidation through diplomacy and personal contacts for international cooperation will be created and attracted.

It is our hope that positive and practical results will be obtained from this policy. This system respects the principles embodied in the charter of the United Nations, the object of which is prosperity of the human race and tranquility of the world.

Our relations with Pakistan, which is the only nation with whom we have a political difference over the Pashtunistan issue which we have not been able to solve so far, will be based on our permanent efforts to find a solution to the Pashtunistan problem.

In the end I once again congratulate all my countrymen on this great national achievement and express my sincere thanks and gratitude to all patriots, especially the Afghan armed forces who did not refrain from any sincere and selfless efforts. Since our hopes and expectations cannot have any end point, the continuation of this cooperation by all the people of the country, especially the youth which I am certain will be forthcoming, is the heartfelt desire of all of us.

LONG LIVE AFGHANISTAN AND LONG LIVE THE REPUBLIC

Astronomical Works of Al-Beruni

By Dr. Tadeusz Jarzebowski
Astronomical Institute of the Wroclaw University

Dr. Jarzebowski's paper was presented to the seminar on the Millennium of the Birth of Al-Beruni, held in Kabul, June, 1973. The author presents explanations of the most famous astronomical findings of the ancient Ghaznavid scientist. Described at the determination of geographical latitude and longitude, the radius of the Earth, and the inclination of the ecliptic to the Equator

THE MEASUREMENT OF THE RADIUS OF THE EARTH

Al-Beruni held the belief of the sphericity of Earth. He writes: "If the Earth were not round, the winter and the summer days should not differ...".

The famous astronomer from Ghazni has elaborated a completely original method for the determination of the radius of the Earth. The main idea of his method was to measure the lowering of the horizon (when standing on the top of a mountain). In other words—the difference between the mathematical and visible horizon had to be determined.

Al-Beruni's method is illustrated in Figure 1. The measured difference (the lowering of the horizon) is denoted by α the altitude of the mountain by h , and the radius of the Earth by R . From the evident relation.

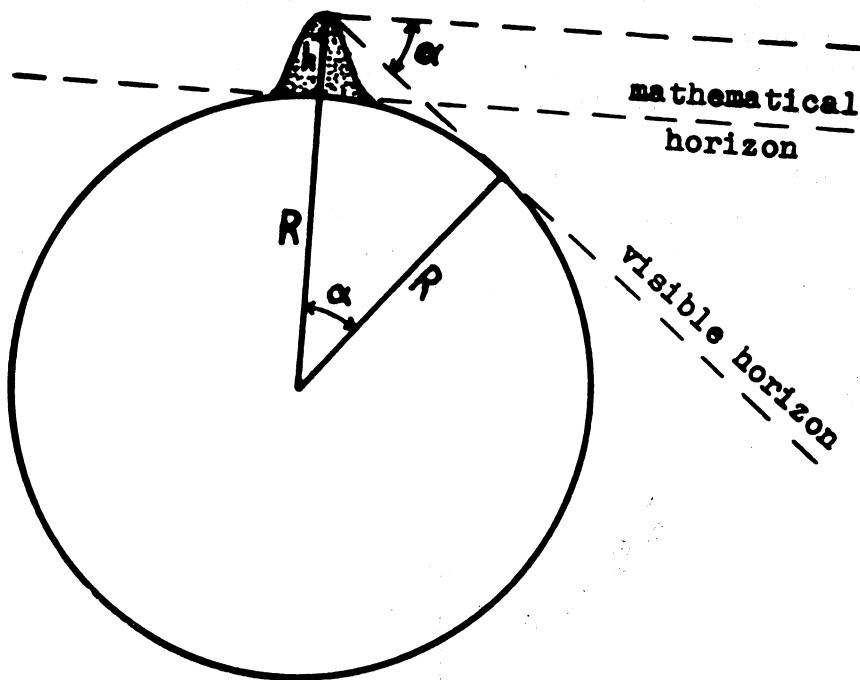


Fig. 1. Al-Beruni's method of the determination of the Earth radius

$$\cos \alpha = \frac{R}{R + h}$$

one obtains the value of the Earth radius

$$R = \frac{h \cos \alpha}{1 - \cos \alpha}$$

Al-Beruni made his investigation from a mountain in India. He measured the value α as well as the altitude of the mountain h . For the circumference of the Earth ($2\pi R$) he got the value of 20400 Arabic miles. If we count the Arabic miles over presently used units, for the circumference of the Earth —obtained by Beruni—we get the value.

$$2\pi R = 40180 \text{ km}.$$

This value is in excellent agreement with present data (the mean value of the Earth circumference is 40010 km).

The result obtained by Beruni was a prominent achievement in his epoch.

Al-Beruni was the last scientist of the Middle Ages that had determined the Earth radius. After him the investigations in this domain had stopped until the 16th century.

So, the value of the radius of the Earth that was obtained by Beruni was the best for over five centuries.

THE DETERMINATION OF GEOGRAPHICAL LATITUDE

The elementary definition of the geographical latitude is the following: it is the distance from the Earth's equator to a given point on the surface of the Earth—measured in angular units. This is shown in Figure 2a; the point on the Earth is designated by M, the latitude of this point is denoted by

φ

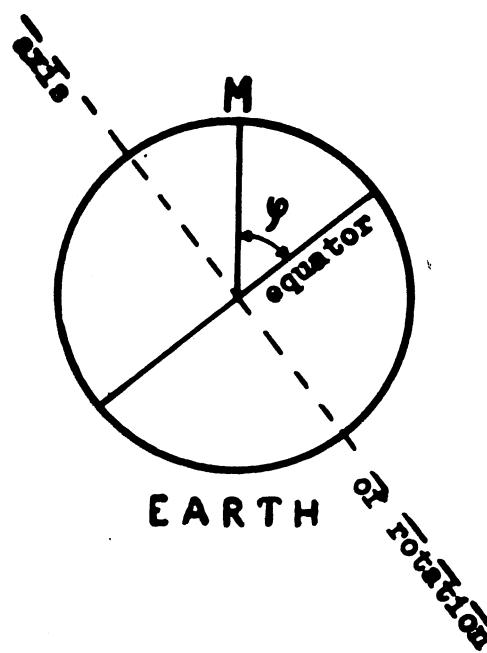


Fig. 2. a) The definition of geographical latitude φ

In Figure 2b is shown the Earth, surrounded by the celestial sphere. When comparing the figures 2a and 2b, we see that the angle of the geographical latitude φ is between the plane of the equator and the zenith (Z). Tak-

ing into account the perpendicularity of the sides, it is clear that the angle φ is also between the celestial pole (P) and the point N (stating the north on the horizon).

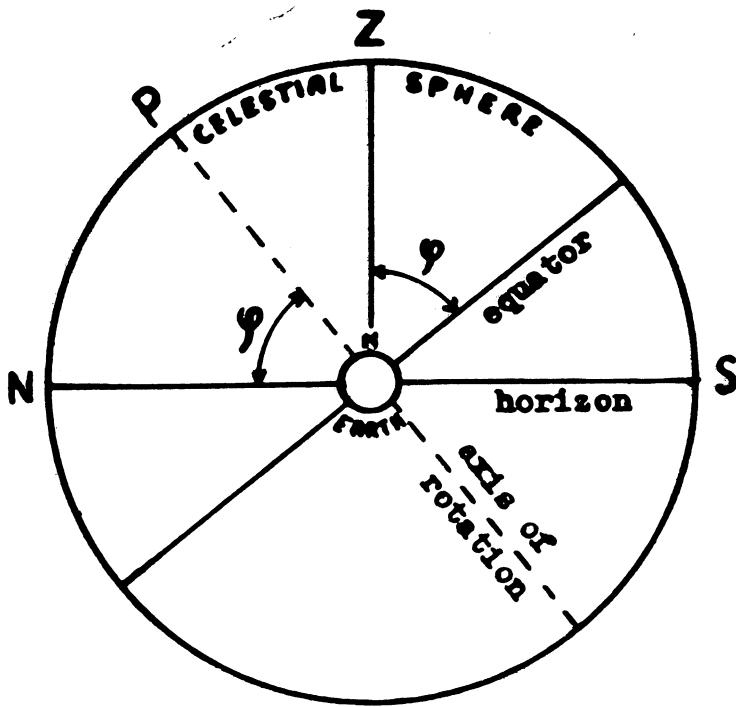


Fig. 2. b) The angle φ on the celestial sphere.

Al-Beruni introduced several methods for the determination of latitude. One of his methods is based on the measurements of the height of a circumpolar star in its lower culmination, and - after 12 hours-in its upper culmination.

This method is illustrated in Figure 5. The height of the star in its lower culmination is designated by h_1 , while its height in upper culmination is designated by h_2 . The value of the geographical latitude φ is expressed by an evident formula

$$\varphi = \frac{h_1 + h_2}{2}$$

Al-Beruni has measured geographical latitudes φ for over 600 places. The mean error of his measurement—when comparing with presently known values—is of the order of 0.5° , and this corresponds to about 55 km on the surface of the Earth.

The methods of the determination of geographical latitude, introduced by Beruni, are of importance up to present time. Some of Beruni's methods are still used now in geodesic astronomy.

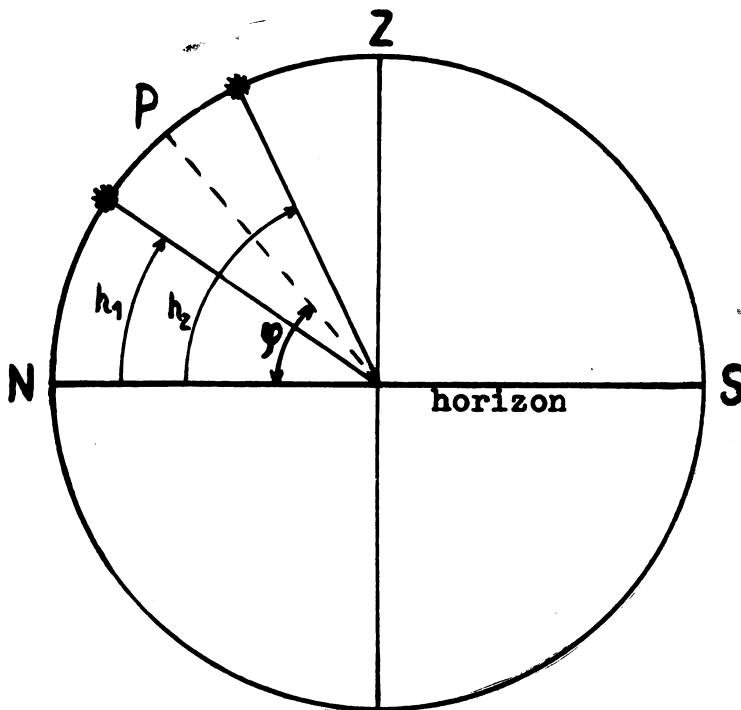


Fig. 3.) One of Beruni's methods for the measurements of geographical latitude.

THE DETERMINATION OF GEOGRAPHIC LONGITUDE

The determination of geographic longitude presents a much more difficult problem than the determination of latitude. (The latitude is measured from the Earth equator which is a natural plane, while there is no naturally distinguished meridian from which one could measure the longitude). In the epoch of Al-Beruni it was only possible to measure the differences in geographic longitudes, and not their absolute values.

Al-Beruni invented a method for the determination of longitude. His method was based on the measurements of the distance between the investigated points on the Earth's surface; the geographic latitudes of these points should be measured in advance.

The problem is illustrated in Figure 4. P denotes the Earth's north pole; M and K are the two points, the difference in longitude of which should be determined. (The point K may represent, for instance, Kabul, the point M—Mecca). The geographic longitude of the point M is denoted by λ_1 ,

while the latitude of this point is denoted by φ_1 . The longitude and the latitude of the point K are denoted correspondingly by λ_2 and φ_2 .

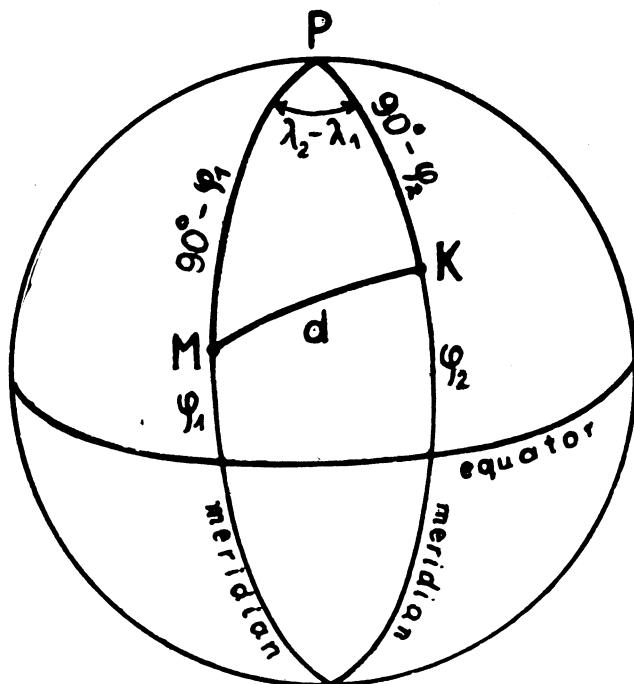


Fig. 4) The illustration for Beruni's method for the determination of geographic longitude

We see that one gets here a spherical triangle P M K. In this triangle the values of all three sides

$$(MP = 90^\circ - \varphi_1, KP = 90^\circ - \varphi_2, \text{ and } MK = d)$$

are known. The angle at the vertex P represents the unknown difference in longitudes $\lambda_2 - \lambda_1$ between the two points M and K. In

order to obtain the value $\lambda_2 - \lambda_1$, one must solve this spherical triangle.

In connection with this problem Al-Beruni made one of his most famous discoveries—he created spherical trigonometry. For the solution of the discussed triangle PMK Beruni got the formula

$$\cos d = \sin \varphi_1 \sin \varphi_2 + \cos \varphi_1 \cos \varphi_2 \cos (\lambda_2 - \lambda_1)$$

From this formula the required difference in geographic longitudes can be obtained. $\lambda_2 - \lambda_1$

The formula of spherical trigonometry, invented by Beruni, represents in present-day times the fundamental mathematical basis in spherical astronomy and in geodesy.

THE INCLINATION OF THE ECLIPTIC TO THE EQUATOR

The angle of inclination of the ecliptic to the equator equals the angle between the axis of rotation of the Earth and the axis perpendicular to the plane of Earth's revolution around the Sun (Figure 5). The knowledge of this angle is of big importance in astronomy.

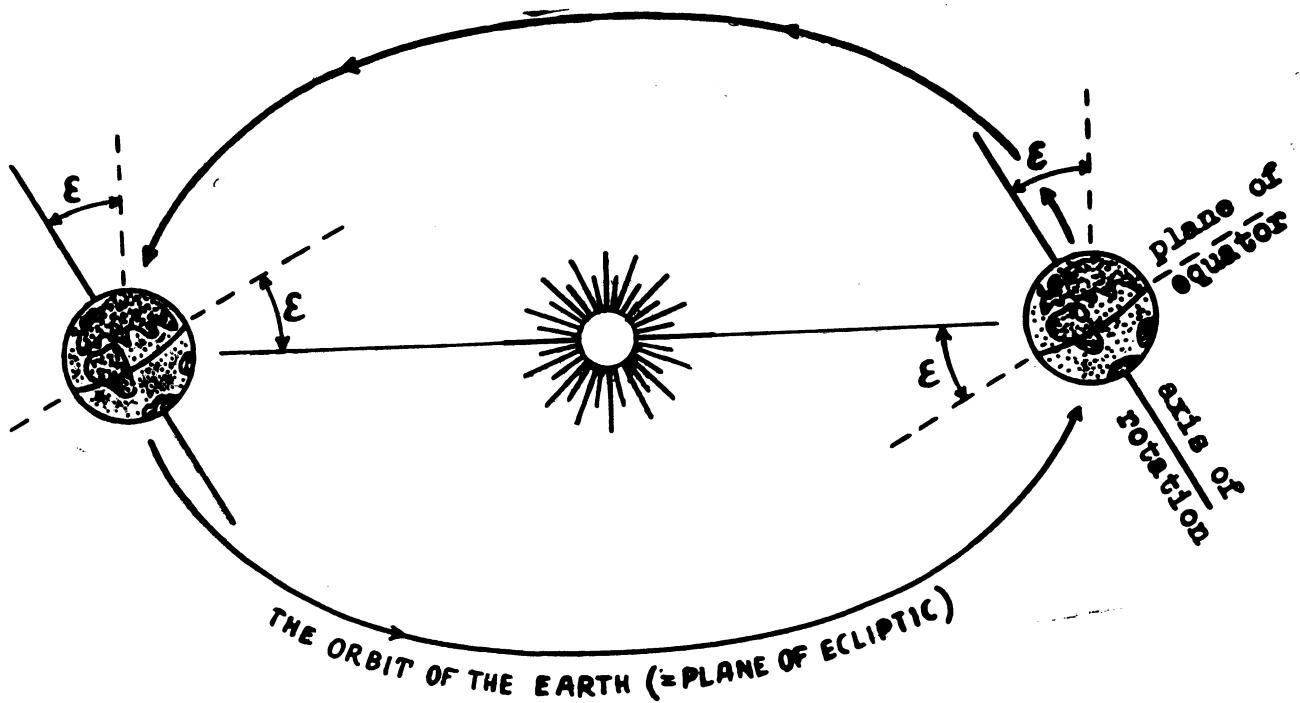


Fig. 5. The representation of the angle ϵ between the ecliptic and the equator. The right position of the Earth corresponds to June 22, the left position—December 22

The value of this angle can be obtained from the measurements of the position of the Sun in summer (June 22) and in winter (December 22). This can be understood from the Figure 5.

Al-Beuni devoted many years to this investigation. His well-known measurements were made in Ghazni. The results have been given in his QAN-UN-I-MAS'UDI. we find there the value. $\epsilon = 23^\circ 34'$

Beruni compared his result with the measurements of his predecessors, and he was able to state that the value of this angle is decreasing by $52''$ per century.

How accurate were the measurements of Al-Beruni?

The value ϵ according to the present data, can be represented by

the following formula: $\varepsilon = 23^\circ 27' - 0,47''$ (t—1900),
where t denotes the year.

Beruni's measurements were made about the year 1020. If we put for t the value of 1020, we conclude that in the year 1020 the inclination of the ecliptic to the equator should amount

$$\begin{aligned}\varepsilon &= 23^\circ 27' - 0,47'' \quad (1020-1900) \\ &= 23^\circ 27' + 0,47'' \cdot 880 \\ &= 23^\circ 27' + 7' \\ &\approx 23^\circ 34'\end{aligned}$$

And just this angle— $23^\circ 34'$ —Beruni obtained from his measurements. So, the accuracy of his measurements was excellent!

THE DAWN AND THE DUSK. THE LIGHT OF THE MOON DURING ECLIPSE

When talking about the astronomical works of Al-Beruni, we must also mention about his ideas on the explanation of some phenomena.

One of the unsolved questions of that epoch was the problem why it is daylight before sunrise, and why it does not become dark immediately after the sunset. In other words: why we observe the phenomenon of dawn and dusk?

The scientists of the ancient times were not able to account for this phenomenon, and sometimes a completely wrong idea was put forward—namely that the daylight comes independently of the sunlight.

Beruni was the first to suggest the correct explanation of the phenomena of dawn and dusk. He turned the attention to the role of the atmosphere surrounding our Earth. He wrote that the dispersion of light on the particles in the air can account for this phenomenon. His suggestion has been fully confirmed—this phenomenon is caused by the dispersion of light on the molecules of the Earth's atmosphere.

The gifted intellect of Al-Beruni turned also its attention to the correct accounting for another phenomenon: the light of the Moon during its eclipse. The fact that the Moon, after entering into the shadow of the Earth, is seen and has faint reddish color, was completely unaccountable. Beruni suggested that this could be caused by the change of the direction of sun light in the Earth atmosphere.

This idea of Beruni's has also been fully confirmed.



In this concise summary I have presented the most famous astronomical works of Al-Beruni. I did not discuss here Beruni's idea on the heliocentric

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system because this was extensively described in the paper given by Prof. Anas.

But those heliocentric ideas of Al-Beruni are of special interest for me. I am an astronomer from Poland. In this year we are celebrating the quincentenary of the birth of Nicolaus Copernicus. Copernicus elaborated the heliocentric system, and this is the system, about which your countrymen Beruni wrote in his papers five centuries earlier. This fact that Beruni and Copernicus held the belief of the same idea—the idea of heliocentrism—joins our two countries, joins Poland and Afghanistan.

LES VASES D'ABONDANCE DE LA GROTTE I DE BAMYAN

Par Dr. Zémaryalai Tarzi

In this article, Dr. Tarzi discusses the engravings, that look like the “running fountains” in the caves of Bamiyan. He disproves an older theory that the style of these engravings shows influence from the Iranian art. He proposes rather, a “floral” influence from Indian art.

ABREVATION DES TITRES DE REVUES

AA. — Arts Asiatiques.

MASI. — Memoirs of Archaeological Survey of India.

MDAFA. — Mémoires de la Délégation archéologique française en Afghanistan.

PMGRAA. — Publication du Musée Guimet, Recherches et documents d'art et d'archéologie.

RAA. — Revue des Arts Asiatiques.

Dans la grotte I (1), au sommet de chaque arc formant les deux rangées d'arcatures superposées, se trouve la représentation d'emblèmes enrubannés (PL. I,a) appelés “vase aux eaux jaillissantes” (2). Cette désignation nous

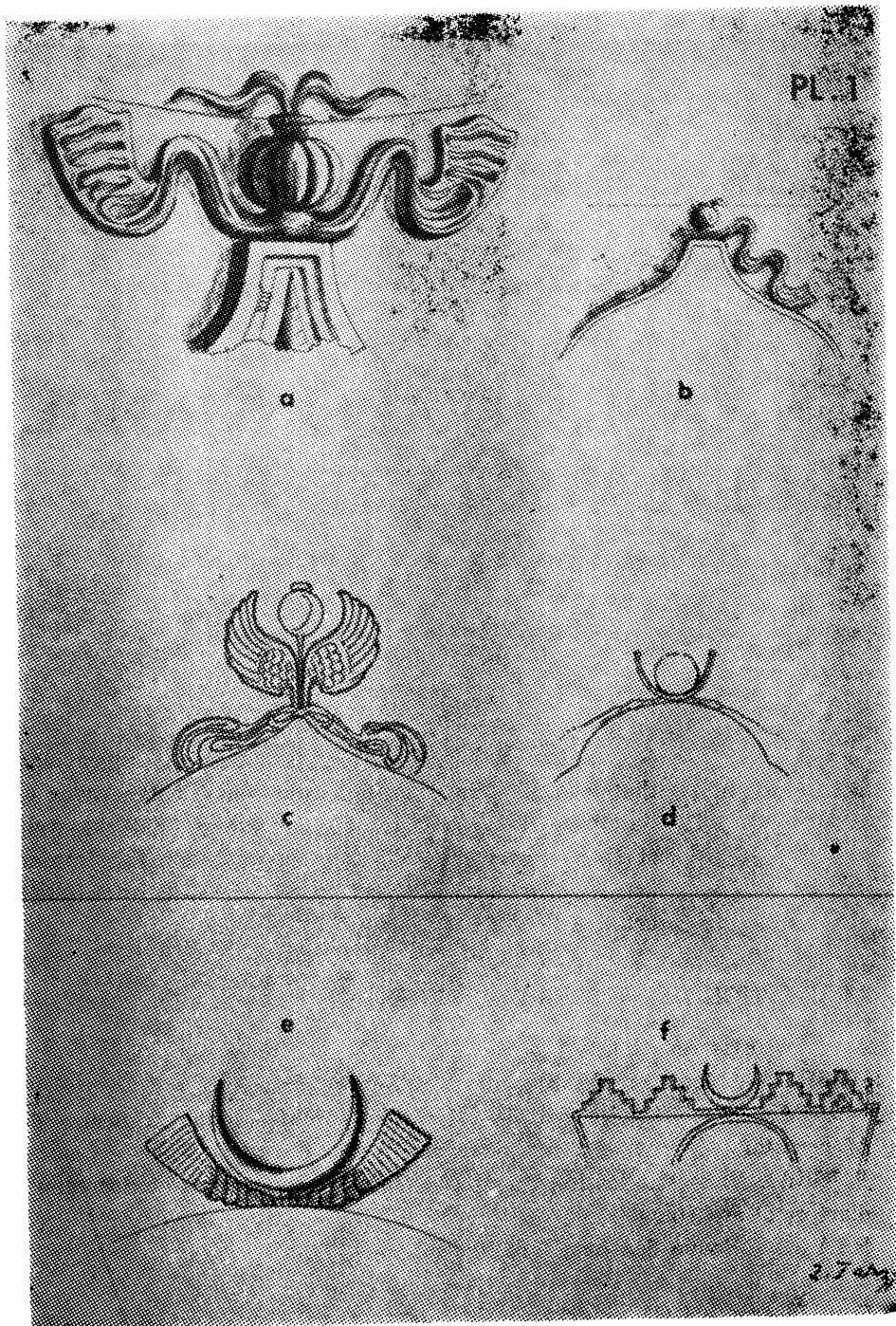


PLANCHE 1

paraît incorrecte. En réalité, le vase qui est un motif très ancien a souvent été à des représentations de divinité mésopotamiennes. Les eaux qui en jaillissent sont représentées par des ondulations schématisées (2) et sont également symbolisées par la présence de poissons (4). Il suffirait, de lire l'article de R. Pfister (5) où l'auteur discute le problème du vase mésopotamien en se basant sur d'autres tavaux dont il fait mention dans ses notes bibliographiques (6) et de contempler les planches du livre de G. Combaz (7) qui nous montrent les détails des reliefs de Tello, de Guse, etc. Dès le début une tige sort du col du vase avec les eaux retombantes ainsi qu'à Tello. En Iran sassanide d'abord, le vase est seulement agrémenté de tiges ainsi que nous le retrouvons sur le Gobelin du Musée Guimet (8). Peu à peu, il nous semble que dans certain cas le vase est remplacé par d'autres éléments végétaux, fleurs ou grenades, et qu'ainsi il s'intègre au répertoire décoratif.

Le motif de la grenade gagne en ampleur et on le voit ornant les couronnes des monarques Kushano-sassanides (9) et Kidarites (10) d'Afghanistan. En effet, les globes côtelés qui entrent dans la composition de ces couronnes où ils sont souvent associés à d'autres éléments, des ailes déployées et enrubannées, tiennent plus de la grenade que du vase. Nous insistons sur ce détail parce que dans la plupart des cas la confusion a été incommodement faite (11). Mais la question qui nous intéresse plus particulièrement est que dans l'art sassanide les sommets des arcs ne sont pas ornés de vases mais d'emblèmes enrubannés. Il en est ainsi de la grenade à Ctésiphon (PL. 2,f) du croissant de lune à Taq-e-Bostan (PL. 1,e) et sur un plat sassanide (PL. 1,f) (12). Nous observons un tel dispositif sur un relief du Gandhara conservé au Musée Guimet (G.M. 1721¹⁴), dispositif dont les rubans paraissent en bon état de conservation (PL. 2,g). En Asie centrale, il s'agit, à Qyzil, d'un bourgeon de lotus (?) flanqué de deux feuilles également enrubannées (PL. 2,e), et, à Bamyan, d'une grenade et ailes déployées, le tout pare de rubans ornant la salle 2 du groupe C (PL 1,c) et d'un Croissant emperlé surmonté d'un disque ou globe, situé dans la salle 1 du groupe D (PL 1,d).

Ainsi serait-il préférable qu'on attribue le soit-disant vase jaillissant de la grotte I au répertoire des emblèmes royaux du type de la grenade. Mais ce qui reste inexpliqué, ce sont les ondes sinuées qui l'agrémentent. Elles seront définies par nous comme étant des rubans sinon des feuilles telles qui coiffent l'emblème circulaire d'un Bouddha assi, sur la plaque de bronze provenant d'Ak-Bechim en Semiretchye en Asie centrale soviétique (13). Il nous reste encore à signaler que les autres fragments d'emblèmes ornant les sommets des arcs à Bamyan se trouvent dans la grotte V (PL. 1,b) et dans la grotte XI: ils ne sont malheureusement que très fragmentaires. Il convient de dire qu'il est inutile de se forcer, comme l'ont fait J. Hackin et G. Combaz, pour chercher à Bamyan un lointain souvenir mésopotamien auquel attribuer l'emblème de la grotte I. Nous avons vu qu'en Iran sassanide, en Afghanistan et même en Asie centrale, les sommets des arcs ne sont pas

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ornés de vases, mais d'éléments pris au répertoire d'emblèmes que nous avons appelés émblèmes royaux car il sont semblables à ceux des couronnes qu'on retrouve dans la sculpture, dans la peinture, dans l'orfévrerie et surtout sur les monnaies.

L'emblème de la grenade a donc été généralement confondu avec les vases mésopotamiens. Il en est ainsi entre autres dans la grotte I. Mais dans cette même grotte et la salle 2 du groupe D, il y a de vrais vase, et il nous paraît plus étonnant encore que ceux-ci n'aient fait l'objet d'aucune mention. Dans ces grotte il y a entre chaque arc une platebande de jonctions, le tout formant une ceinture d'arcature. C'est au milieu de ces plate-bandes que se trouvent ces vases (PL. 3 b) Ils sont de dimensions restreintes. Aussi pourrait-ils, sans une observation approfondie passer inaperçus. De leurs cols sortent les branches ondulantes des rinceaux que nous aurons le loisir d'étudier en vue d'un article dans l'un des numéros de la revue "Afghanistan".

Il ne serait nullement indu de chercher ici le passage de motifs mésopotamiens de l'Iran (14) en Afghanistan notamment à Begram (15), à Hadda aussi à Bamyan, en Inde et en Asie centrale. Il est vrai que dans chacune de ces régions, selon un besoin décoratif ou un symbolisme différent, les eaux ont été remplacées par des tiges végétales. En Inde, ainsi que nous l'indique G. Combaz en accord avec A. Coomaraswamy (16), l'aspect décoratif est souvent en rapport avec le symbolisme, l'eau étant remplacée par la fleur de lotus. La représentation de ces vases se rencontre fréquemment

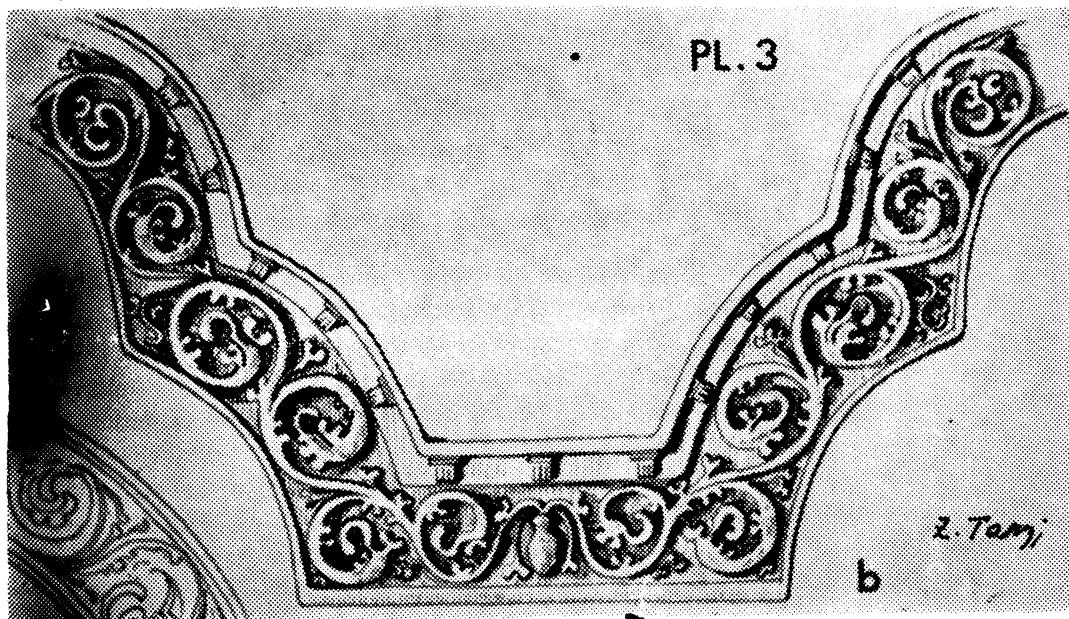


PLANCHE 3

dans la sculpture dès le II e siècle avant J.-C. notamment sur le stupa II de Sanchi et sur celui de Barhut. On les retrouve d'une façon presque continue à travers toutes les écoles de l'art indien jusqu'à l'époque groupata et post-groupata (17).

L'évolution du purna ghata (vase d'abondance dans les autres domaines artistiques indiens a fait l'objet d'étude de C. Krishna Gairola (18), étude complétées en ce qui concerne l'interprétation de son symbolisme, d'après les textes par S. Al-George et A. Rosu (19). Le vase d'abondance indien est donc souvent garni d'un volumineux bouquet de lotus (20). A Bamyan, dans la grotte I (Pl. 3, b) et dans la salle 2 du groupe D, les vases sont à l'origine de la naissance de branches ondulantes formant les rinceaux. Ainsi que nous l'avons signalé, les lecteurs verront que ces rinceaux sont une déformation de tiges fleuries. Un rapprochement de ces vases et vases d'abondance indiens ne fait aucun doute. Par contre, nous ne trouvons en Iran sassanide aucun exemple de vases semblables à ceux de Bamyan en ce qui concerne leur position au milieu des riceaux sur une plate-bande horizontale. En cela les vases de Bamyan sont plus proches de ceux de l'Inde (21) et de l'Asie centrale (21). Mais les rinceaux sont parfaitement de type indien. Il nous paraît donc provisoirement préférable de rapprocher les vases de Bamyan de ceux de l'Inde ce du fait de la présence des branches ondulantes aux enroulements bulbés.

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- (14). — FFISTER, R., op.cit., p.77 sv.
- (15). -- AUBOYER, J., Afghanistan et son art, Prague, 1968, P1.36,a.
- (16). — COMBAZ, G., op.cit. p.174; COOMARASWAMY, A., *Yaksas, Miscellaneous collection*, Part. I, 1928; Part. II, 1929, 1 ere Partie, p.61. Employer également n. édition. Delhi, 1971.
- (17). — KRISHNA GAIROLA, C., Evolution du purna ghata (vase d'abondance) dans l'Inde et l'Inde extérieure, in AA., I, 3, 1954, p. 219-222.
- (18). — Ibid.
- (19). — AL-GEORGE, Set ROSU, A., Purna ghata et le symbolisme du vase dans l'Inde, in AA., IV, 4, 1957, p. 243-254.
- (20). — En plus des planches de KRISHNA GAIROLA, C., op.cit., Cf. HALLADE, M., *Art de l'Asie ancienne, Thèmes et motifs : I, L'Inde*, PMGAA., V. Paris, 1954, P1.XVI, fig.180, fig.181, Cf. également COOMARASWAMY, A., op.cit., P1.27-33.
- (21). — COOMARASWAMY, A., op.cit., P1.31, P1.33.5.

PLANCHES

Planche 1

- PL.1.a. — Bamyan. Grotte I, emblème enrubanné au sommet des arcatures.
- PL.1.b. — Bamyan. Grotte V, emblème enrubanné (fragment) au sommet des arcatures.
- PL.1.c. — Bamyan. Groupe C, emblème ailé et enrubanné au sommet des arcatures de la salle 2.

PL.1.d. — Bamyan. Groupe D, emblème au croissant façade de la salle 1.

PL.1.e. — Iran sassanide. Taq-e-Bostan, emblème à croissant au sommet de l'Iwan, d'après GODARD, A., *L'Art de l'Iran* Paris, 1962, P1. 113.

PL.1.f. — Iran sassanide. Plat sassanide, emblème à croissant au sommet d'un Iwan, d'après GHIRSHMAN, R., *Parthes et Sassanides*, Paris, 1962, fig.346, p.206.

PLANCHE 2

(Please see back cover)

Planche 3

PL.3.b. — Bamyan. Gratte I, ornement de la première rangée d'arcature.

Inscribed Clay Tablets and Miniature Stupas from Ghazni

By Maurizio Taddei

This article is reprinted from EAST AND WEST vol. 20, no. 1-2, 1970. It describes the products of a find by the Italian Archeological Mission at Ghazni: miniature stupas and clay tablets from the Buddhist era. The pieces are catalogued, and the author discusses their archeological import as well as their meaning in the context of the Buddhist religion.

In the course of the Italian Archaeological Mission's excavation campaign at Ghazni, in October 1968, some workers gave me information that led to the identification of a new Buddhist site.

The Afghan Institute of Archaeology was immediately notified about the discovery; and through it, permission to make some test soundings was granted by the competent Ministry; these will be carried out during the one of the next campaigns.

The locality lies southwest of citadel, beyond the old road to Qandahar, and is known by the name of Gudul-i Ahangaran (1). Some construction work inside the complex of family dwellings owned by Mr. Muhammad Azim "Qasab" led to the digging of some holes in the large inner courtyard, so as to obtain, without too much trouble, clay for making unfired bricks to be used on the spot.

The holes dug offered up a fairly large number of objects, all of unfired clay; I think it useful to make this find known. An examination of the terrain, not accompanied by any kind of sounding, did not enable me to recognise stratigraphical elements or construction remains.

CATALOGUE OF FINDS

I. MINIATURE STUPAS

I divided the miniature stupas of Gudul-i Ahangaran into seven types, at the time of discovery. I am preserving that temporary classification, since the nature of this article does not demand a more rigorous subdivision. Even the comparisons proposed have been deliberately contained within essential limits.

TYPE A

MINIATURE STUPA on lotus base, supported by high pedestal in the shape of a truncated cone (fig. 5).

Diam. at base of stupa, ca. 0.033.

Inv. nos. GA. 57-60.

TYPE B

Miniature STUPA with bipartite base and four flights of steps, supported by a pedestal in the shape of a truncated cone; bulb-shaped (?) dome on bipartite moulding. Retouching after removal from mould was obviously needed to obtain restricted shape of dome at its spring. Five holes for wooden pins (centre and corners) fig. 1, 6, 7).

Width 0.075/0.080; diam. of dome at spring 0.033.

Inv. nos. GA. 61-63.

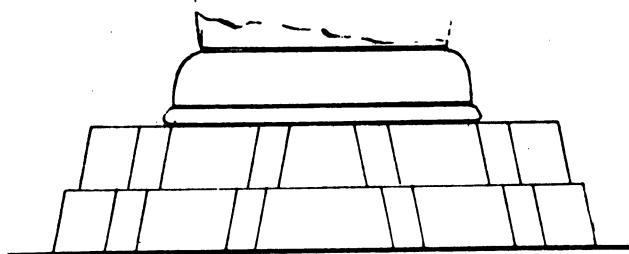


Fig. 1—Gudul-i Ahangaran, Miniature STUPA, Type B. Scale 1:1.

TYPE C

Miniature STUPA on lotus base, with four flights of steps, supported by a pedestal in the shape of a truncated cone. A minor dome at the top of each flight of steps (figs. 2,8,9). There is evidence of clay tablets being deposited in the core of STUPA of this kind (figs. 10, 11).

Diam. of lotus base 0.073; diam. of STUPA 0.058.

Inv. nos. GA. 64, 65.

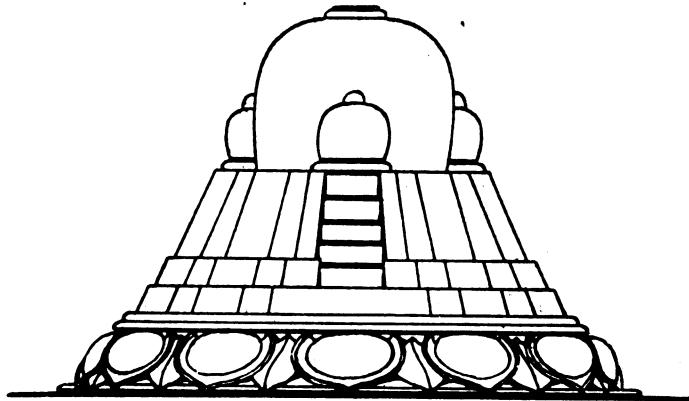


Fig. 2—Gudul-i Ahangaran, Miniature STUPA, Type C. Scale 1:1.

TYPE D

Miniature STUPA on lotus base, with four flights of steps, supported by a pedestal in the shape of a truncated cone; bulb-shaped (?) dome; staffs or pillars at the angles of quadrangular storey, presumably supporting dome (fig. 3). For shape of dome, cf. type B.

Diam of lotus base 0.092; diam. of dome at spring ca. 0.045.

Inv. GA. 66, 67.

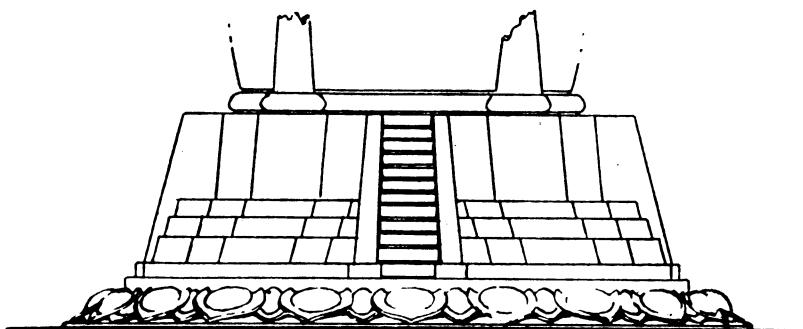


Fig. 3—Gudui-i Ahangaran. Miniature STUPA, Type D. Scale 1:1.

TYPE E

Miniature STUPA with four flights of steps, supported by a high pedestal in the shape of a truncated cone. Red paint. A hole for wooden pin at the centre (fig. 4).

Inv. nos. GA. 68-70.

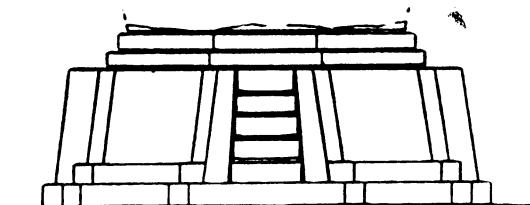


Fig. 4—Gudul-i Ahangaran, Miniature STUPA Type E. Scale 2:1.

TYPE F

Miniature STUPA with four flights of steps and irregularly-shaped dome, supported by pedestal in the shape of a truncated cone; decorated with streaks of red paint on stairways. A hole for wooden pin at the centre.

Inv. GA. 71, 72.

TYPE G

Miniature STUPA similar to type C, but lotus petals are smaller and crudely modelled.

Inv. no. GA. 74.

A characteristic common to all the miniature STUPAS of Gudul-i Ahangaran is the strong development of the cone-shaped base on which the actual STUPA itself stands, mould-cast. This is also to be found in the Tibetan examples described by Tucci, to be discussed later in this article, while the others from India and Central Asia, of which we have a description or a reproduction (2) or that I myself have been able to view (figs. 12, 13) (3), are often (4) devoid of the cone-shaped base or have it barely developed.

Even with differing variants, the type is in any case that known as the "STUPA of the descent from heaven", and as Tucci writes regarding the examples preserved in Tibet, "they are almost constantly found near the most ancient monasteries of the region (...) in all those places that an almost unanimous tradition, and one that we have no reason for thinking groundless, connects with the great work of Buddhist propaganda of the great translator Rin c'en bzan po (10th cent.)" (5). We are sure that this type was known in the Ghazni region thanks to the excavation of Tapa Sardar (6), and it is, in fact, in connection with the clay STUPAS of Tapa Sardar that I intend to examine the typological question as a whole, in one of my next reports.

I shall limit myself here to observing that, for the moment, we can gather into a single group the STUPAS and small models from Ghazni and those from Tibet published by Francke and by Tucci (see infra). Then too, type C in particular, represented by Inv. no. GA. 65 (fig. 9) (Inv. no. GA. 64 belongs to the same type but the upper part is missing), can well be compared with some miniature STUPAS from Sravasti (7) as regards the four minor domes at the top of the stairways, even if the stairways in the Sravasti examples are far less developed than in those from Gudul-i Ahangaran.

2. INSCRIBED CLAY TABLETS

TYPE A

Round tablet with back side slightly convex and marked by finger-prints. Round impression encircled by fillet and showing bell-shaped STUPA resting on large lotus flower and seven-line inscription (fourth and fifth lines on the left separated from each other by double fillet) in neat post-Gupta KUTILA characters (figs. :14, 15):

ye	dha
rma he	tu pra bha
va he tum te	sam ta tha
ga to / (hya)	va da t
(te sam ca)	5 yo ni
(ro) dha e	vam va di
(ma) h (a) sra	ma na (h)

3. SAM: ANUSVARA on the left. 4. HA instead of HYA; t represented by ta. 5. The three characters on the left are illegible.

Diam of tablet 0.033 to 0.036; diam. of impression 0.030/0.032.

Inv nos. GA. 1-3.

TYPE B

Round tablet with back side convex. Round impression encircled by thin fillet, consisting of a six-line inscription with thin fillets separating lines from each other; neat but stiff and often wrongly written post-Gupta characters (fig. 16):

ye dha rm(a) he (tu)
 pra bha (va) va he tu (m) te
 s(a) ta th(a) ga to / hya va
 da t te s(a)m ca yo ni ro
 5 dha e vam v (a) di ma
 h(a) sra va na(h)

1. RMA ill-shaped. 3. SAM ill-shaped; THA is strangely opened on the right; GA has a superfluous projection on the right. 4. t represented by ta; ni ill-shaped. 5. e ill-shaped; vam: ANUSVARA falling on the dividing fillet. 6. sra ill-shaped.

Diam. of tablet 0.394 to 9.945; diam. of impression 0.028.

Inv. nos. GA. 4-6.

TYPE C

Round tablet marked by fingerprints. Round impression bearing five-line inscription (YE DHARMA...) in almost illegible post-GUPTA characters (fig. 17). Diam. of tablet 0.095; diam. of impression 0.022.

Inv. no. GA. 7.

TYPE D

Round tablet convex on back side; round impression showing six-line inscription in post-Gupta characters. First or sixth line often out of sealing (figs. 18, 19):

y dha (r)m(a) h(e)
 tu pra (bha) v(a) h(e) tu(m)
 t(e) s(a)m ta (ya) th(a) ga (to)
 hya va da (t) t(e) s(am) ca yo (ni ro)
 5 dha e va(m) v(a) di ma
 h(a) sra ma (nah)

2. va instead of bha. 3. sam: anusvara on the left (?); tha ill-shaped; va (?) instead of to. 4. hya incomplete; va open at bottom; ca ill-shaped; yo ill-shaped.

Diam. of tablet 0.025 to 0.255; diam. of impression 0.024.

Inv. nos. GA. 8-11

TYPE E

Round tablet almost flat on back side. Round impression showing five-line KUTILA inscription with profession of faith, almost illegible (fig. 20).

Diam. of tablet 0.02 to 0.021; diam. of impression 0.0165.

Inv. nos. GA; 12-14.

TYPE F

Round tablet almost flat on back side. Round impression showing six-line inscription with profession of faith, almost illegible (figs. 21, 22).

Inv. nos. GA. 15-17.

TYPE F'

Sealing-protector in the shape of a truncated cone, bearing the impression of seal type F in negative (fig. 23).

Diam. 0.02 to 0.0235.

Inv. nos. GA. 18-23.

TYPE G

Round tablet with back side flat and marked by fingerprints. Round impression consisting of a five-line inscription with rather stiff but fairly correct post-Gupta characters (figs. 24, 25):

ye dha rm(a) h(e) tu pra
 bha v(a) h(e) tu(m) te s(a)m ta th(a) ga
 ta(h)/hya (va) da (t) t(e) s(am) ca yo ni ro
 dha e vam va di ma
 5 h(a) sra va na(h)

3 da is ill-shaped and looks very much like ha; te looks more like ta than te at 1. 2.

Diam. of tablet 0.027 to 0.032; diam. of impression 0.027;

Inv. nos. GA; 24-53.

In Type A, the characters that seem most evolved are: HA, which might be compared, in the eastern Ganges area, to the form visible in the Khalimpur plate and in the Mainamati plates, from the 8th cent. (8) and, in the Northwest, to the form of the Horyuji palmleaf MS, also from the 8th cent. (9); SA, of the tailed variety, which seems rather late; DA and DHA, also of the tailed variety, comparable to the corresponding forms of the Horyuji palm-leaf MS (10). On the whole, the inscription can well be compared with that of Kudarakot, attributed to the 7th cent. (11).

Type B shows unusual characteristics. Along with some elegantly drawn characters such as YA and NA, we find others that seem traced out by someone who did not know what he was writing: this is the case with the THA, curiously open to the right. There is an interesting repetition of VA, in two different forms, on 1.2: the first form is traced out with a certain sureness, and is a triangular VA with its base sloping to the right, with the tail added to it to indicate A; the second, on the other hand, is a perfect circle and the appendix for A is very clumsily added. This second form is evidently modelled on the earlier BRAHMI form; I think it probable that whoever made the mould for this Type B copied it from an ancient or pseudo-archaic model, helping himself with the mnemonic repetition of the formula. It is therefore possible that he may have inserted, after BHA, a VA in the modern form more familiar to him, later writing VA again in the form which he barely understood, found on the model. This is why, given the archaic-type nature of the entire inscription, I have preferred putting the first VA between (), rather than the second. It should also be noted that the tripartite YA having an outer curl at the left arm seems to be more frequent in eastern India and Nepal than in the Northwest; this fact too may suggest to us the existence of an earlier, imported model, used for preparing the mould.

The form SRAVANA that appears in Types B and G instead of SRAMANA SRAM, "be weary") is known to lexicography and is derived from SRU, "hear" from which there also comes SRAVAKA, "a disciple of the Buddha" (12). The use of MAHASRAVANA to indicate the Buddha is therefore not exact, but is not exceptional, at least in the epigraphical examples of the profession of faith. Let us recall the stela known as P'ra Sila, "Stone Buddha", preserved in the Wat Chieng Man monastery at Chiengmai (Siam), but certainly the work of Bihar; the inscription (profession of faith) of the 10th cent. that runs around the image of the Buddha ends, in fact, with the word MAHASRAVANA. Mrs. van Lohuizen-de Leeuw reads MAHASRAMANA, however, certainly letting herself be influenced by the thought of the corrected text of the formula (13). If, in fact, we are to believe the drawing published by the Dutch scholar, the next to last character (not visible in the photograph) is certainly VA, not MA, which elsewhere in the same inscription (DHARMMA, MAHA-) and in all the inscriptions of the Ganges plain in this period, is always clearly open-mouthed. The slightly deformed appearance of

the letter is probably due to the particularly difficult point at which it was incised, but is not such as to make the reading VA doubtful.

Types E and F are quite close to some clay tablets from Rajbadidanga (6th-8th cent.), above all as regards the regular arrangement of the letters, aligned at the top, and the pointed appearance of the lower endings (14); but here the characters are too confused and small to permit a palaeographic examination.

In Type G, the very rigid and accentuated indication of the vocalic element in YO and RO seems to me an indication of a rather late date (not before the 6th cent.).

On the whole, therefore, I believe that, from the palaeographic point of view, one can suggest a date between the 7th and 8th cent.

3. OTHER FINDS

Apart from the miniature STUPAS and the clay tablets, the following objects come from the same site:

- a) A clay tablet bearing the impression of a mould representing the Buddha in DHYANMUDRA on a lotus throne (GA. 73; h. 0.05) (fig. 27).
- b) Tip of a finger made of clay, with deeply marked nail (GA. 55; max. 0.043).
- c) Two fragments of fingers made of red clay, with traces of red paint (GA. 54, max. 0.056; GA. 56, max. 0.037);

The discovery of the sculpture fragment is very important because it suggests the presence of a sacred area with images technically similar to those of Tapa Sardar.

The Buddha impressed onto clay tablet Inv. no. GA. 73 again permits us to refer to Tapa Sardar, since it closely resembles, for example, the miniature image of Buddha Inv. no. TS. 947 (fig. 28).

* * *

We are dealing here, then, with two classes of objects, both well-known to scholars of Indian archaeology: 1) miniature STUPAS and 2) clay tablets, inscribed with the Buddhist creed.

Both classes are commonly found in excavations and in casual finds; but the first has not been illustrated with the thoroughness that the number of finds and its objective interest might require. There is also very little written or photographic documentation supplied by publications.

The only group that has been thoroughly published is that found in Tibet, very few in number, described by Tucci (see Bibliography). The groups from Satyapir Bhita (Paharpur), Sarnath and Mirpur Khas (15) are also important,

but are unfortunately published without photographic illustrations. Those from Central Asia that we have already cited, still wait for a satisfactory illustration.

We find more frequent notice of the discovery of clay tablets (sometimes fired) with Buddhist formulas (usually the verse YE DHARMA...MAHASTRA-MANAH—with or without figures of the Buddha, etc.—not be confused with the impressions of proper seals, inasmuch as the dies that were used to obtain them had none of the characteristics of an individual sign and the very purpose of the impression was completely different (16).

Let us note, among the most important groups published, those from Sravasti (17), from Bodhgaya (18), from Saheth Maheth (19), from Sarnath (20), from Rajagrha (21), from Rajbadidanga (West Bengal) (22), from Kiyul (Bihar) (23), from Kasya (24), from Pakna-Bihar (25), from Paharpur (26), from Harwan (Kashmir) (27), from Sirpur (Madhya Pradesh) (28), from Kanheri (29), from Sind (30), from the district of Vizagapatam (31), from Burma (32) and from Tibet (33), to remain within the area of India and Central Asia and in a relatively ancient period. As is clearly evident from this list, the Gangetic plain is the point of major concentration of these objects.

Groups of them as well as isolated examples are scattered around in very many museums, but are rarely published (34).

Some clay tablets that bear only the impression of images or STUPAS, like those found by Sir Aurel Stein at Ch'ien-fo-tung (Tun-huang) (fig. 26) (35), presumably belong to the same category of objects.

In Northwest India too, these clay tablets must have been common in the late Buddhist period: nevertheless, excavation has brought few to light. Let me note here the example from Shah-ji-ki-Dheri that Konow dated to the 8th-9th cent. A.D. (36).

In many cases, unfortunately, the fragility of the material has caused the destruction of the objects (37).

Ghazni itself has yielded a group of clay tablets, as Profs. G. Tucci and U. Scerrato inform me; it seems that they were found near the old Ghazni Hotel, that is, not far from the site of Guduli-i Ahangaran. It appears that the Afghan authorities consigned them to the Indian Embassy to be studied.

* * *

The ceremony of the fabrication of the clay STUPA has been described by Tucci (38) on the basis of Advayavajra and the bsTAN AGYUR.

In Tucci's opinion (39), miniature STUPAS and clay tablets are equally part of the class of the TS'A TS'A; this hypothesis is indirectly confirmed by the probable derivation (again proposed by Tucci) of the name TS'A TS'A from "a Prakrit SACCHAYA or SACCHAHA. Sanskrit SAT-CHAYA, which originally meant perfect "image" and also "reproduction," that is, an image like

another and thus adjectively "equal". This question might be worthy of further precision.

The production methods of the two types of objects resemble each other closely, even if the STUPAS were taken from a die into which the clay was pressed, while in the case of the clay tablets "a ball of fine kneaded clay was held in one hand while a seal mould was pressed into it with the other. Some of these balls of clay have the impression deep down within them" (40). The religious value of the objects is also similar: it is that of a votive offering often destined to be placed within larger STUPAS; in the case of the TS'A TS'A in the shape of MC'OD RTEN (i.e., STUPA), we know that at times they were simply placed on STUPAS of larger dimensions and on small walls. These destinations are witnessed to by the places where the objects were found, and by the direct observation of travellers in cases where it was still possible to come across their actual use (41).

The production technique of the TS'A TS'AS described by Tucci (42) on the basis of a passage in the ADIKARMIKAPRADIPA and one in the KUD-RSTINIRGHATAMA of Advayavajra, can be schematized as follows: 1) MRTI-KAGRAHANA, taking of clay; 2) BIMBABALANA, shaping of the clay; 3) TAILAMRAKSANA, spreading of the shaped clay with oil; 4) MUDRAKSE-PANA, application of the die; 5) AKOTANA, violent pressure of the die against the clay; 6) AKARSANA, invitation made to the divinity represented or named in the formulas to descend into the object; 7) STHAPANA, occupation of object by the divinity; 8) PRATISTHA, definitive consecration; 9) VISARJANA, the sending-away of the divinity; 10) KSAMAPANA, prayer to the divinity to be patient for having been forced to descend, and to forgive eventual omissions in the ceremony.

This description seems to be far less adapted to the production of small MC'OD RTENS than to the making of TS'A TS'AS with impressed images. It should also be stated that in more recent times the small MC'OD RTENS were "very generally made on the road" by the travellers, "by kneading a portion of clay between the fingers" (43); and it was thus quite unlikely that this ritual ceremony was followed in such cases. It may well be that the oldest miniature STUPAS were made by monks and sold to pilgrims, but in more recent times, with the ability to make such objects extended to simple devotees as well, the Lamas could only act as sellers of the TS'A TS'AS with images stamped into them, or of the clay tablets with the profession of faith, as Schlagintweit's testimony would seem to indicate (44).

The conceptual identity between the two types of objects, as proposed by Tucci, can indeed be accepted; nevertheless, it is interesting to note that—as in the examples from Gudul-i Ahangaran—the clay tablets are often placed inside the miniature STUPAS; their function would thus be that of consecrating the other TS'A TSAS—in the form of MC'OD RTENS—which in their turn could be placed inside larger STUPAS.

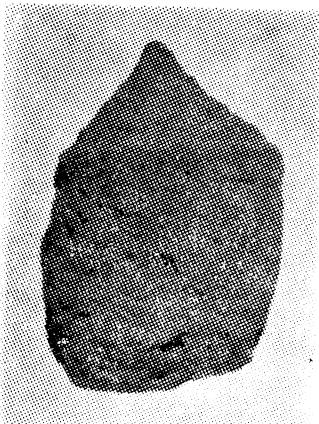


Fig. 5—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA. 57, Type A. Scale 1:1 (Neg. no. Dep. CS.LA 7336/1).



Fig. 6—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA.61, Type B. Scale 1:1 (Neg. no. Dep.CS.LA 7336/8).



Fig. 7—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA. 63, Type B. Scale 1:1 (Neg. no. Dep. CS.LA 7334/8).



Fig. 8—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA.64, Type C. Scale 1:1 (Neg. no. Dep. CS.LA 7334/3).

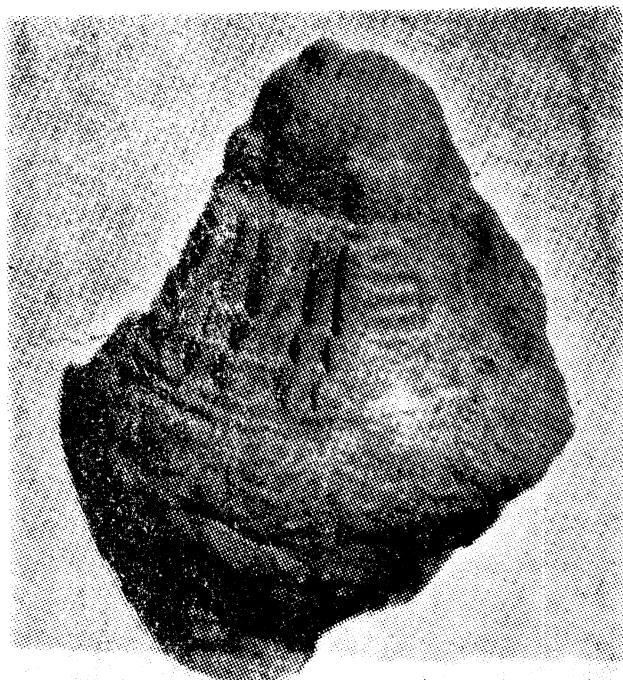


Fig. 9—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA.65, Type C Scale 1:1 Neg. no. Dep. CS.LA 7378/4).



Fig. 10—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA.64, showing embedded clay tablet. Scale 1:1 (Neg. no. Dep. CS.LA 7334/5).



Fig. 11—Gudul-i Ahangaran. Miniature STUPA Inv. no. GA.65, showing impression of inscribed tablet. Scale 1:1 (Neg. no. Dep. CS.LA 7378/7).

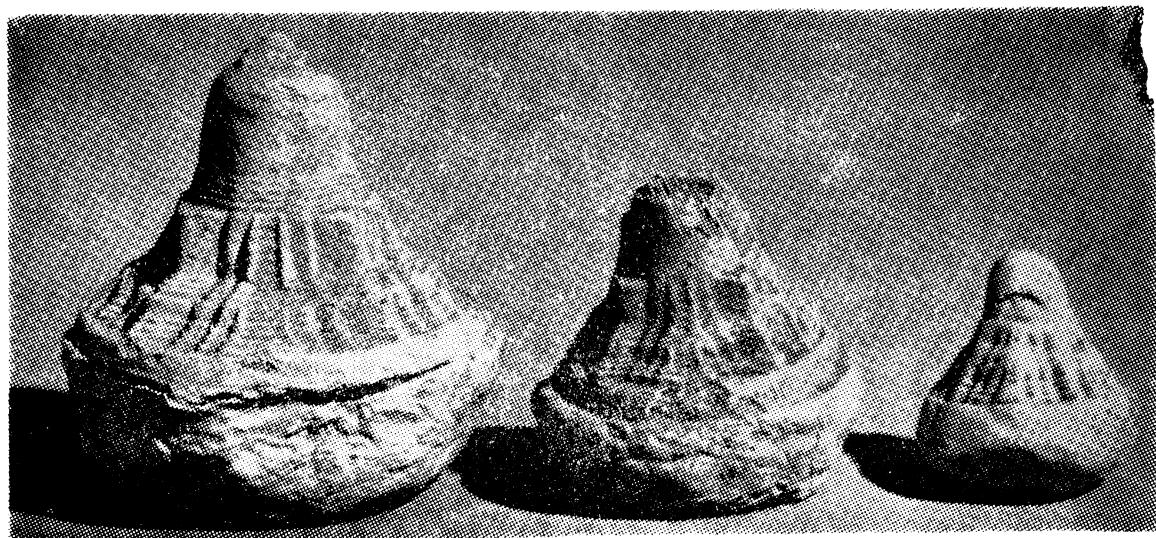


Fig. 12— Miniature STUPAS from Khara-Khoto. National Museum, New Delhi.

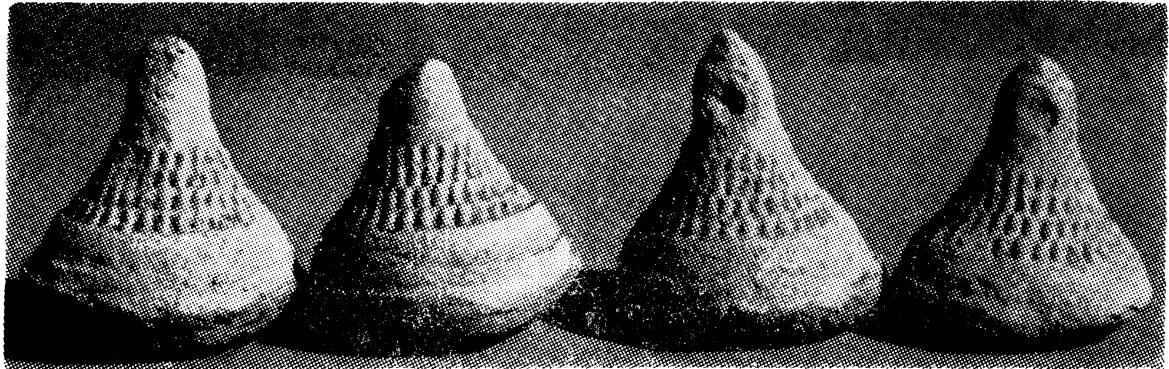


Fig. 13—Miniature STUPAS from Khara-Khoto, National Museum, New Delhi.

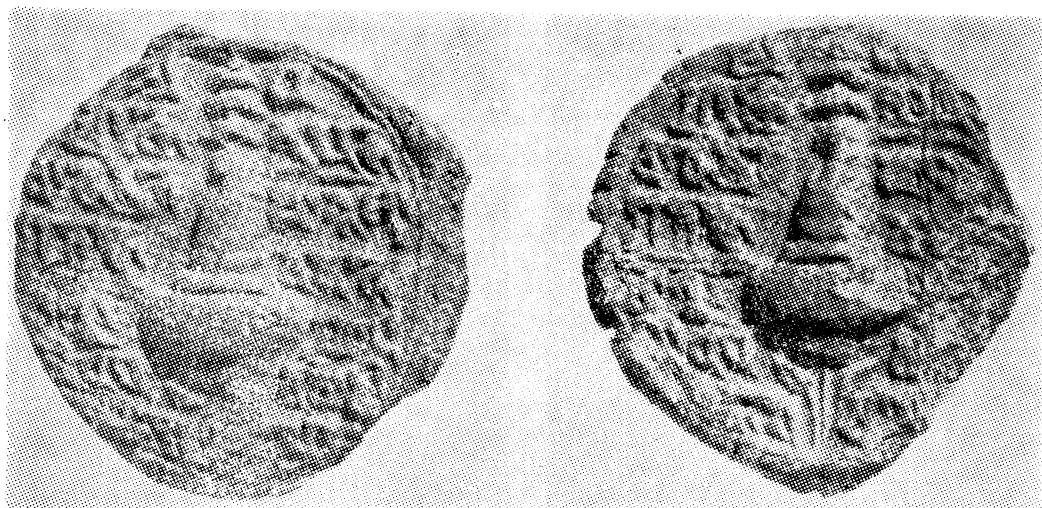


Fig. 14—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.1, Type A. Scale 2:1 (Neg. no. Dep. CS.LA 7335/1).

Fig. 15—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.2, Type A. Scale 2:1 (Neg. no. Dep. CS.LA 7333/4).

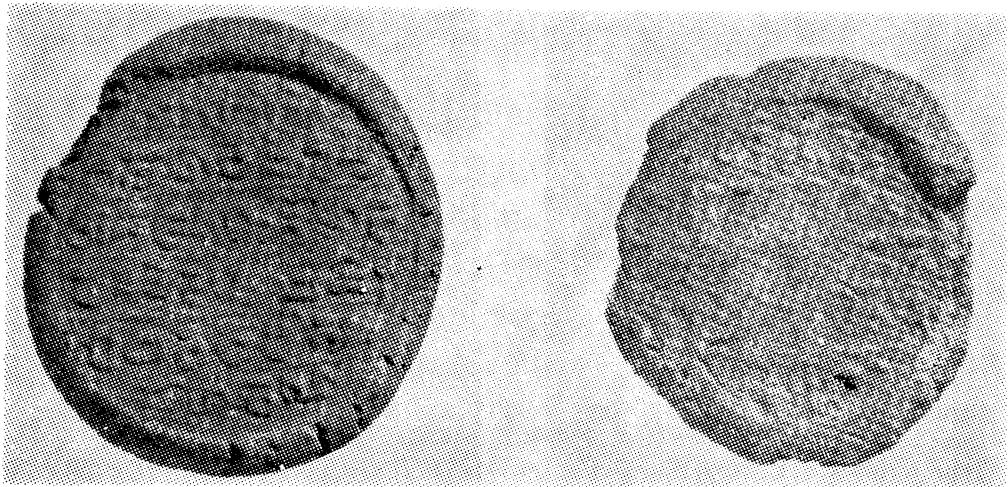


Fig. 16—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.4, Type B Scale 2:1 (Neg. no. Dep. CS.LA 7333/2).

Fig. 17—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.7, Type C. Scale 2:1 (Neg. no. Dep. CS.LA 7335/4).



Fig. 18—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.8, Type D. Scale 2:1 (Neg. no. Dep. CS.LA 7330/4).

Fig. 19—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.9, Type D. Scale 2:1 (Neg. no. Dep. CS.LA 7335/5).

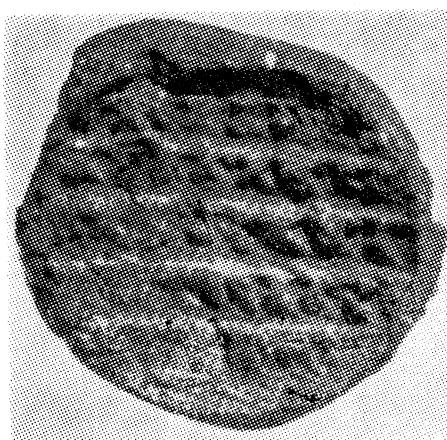


Fig. 20—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.13, Type E. Scale 3:1 (Neg. no. Dep. CS.LA 7335/6).

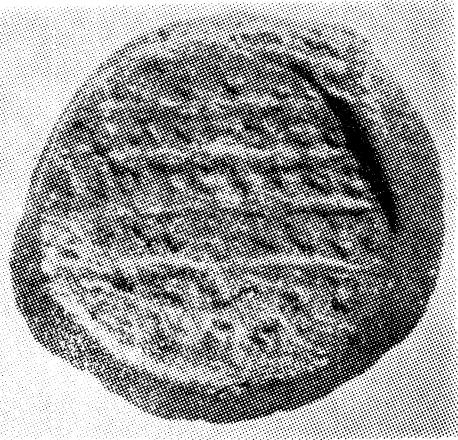


Fig. 21—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.15, Type F. Scale 3:1 (Neg. no. Dep. CS.LA 7350/2).

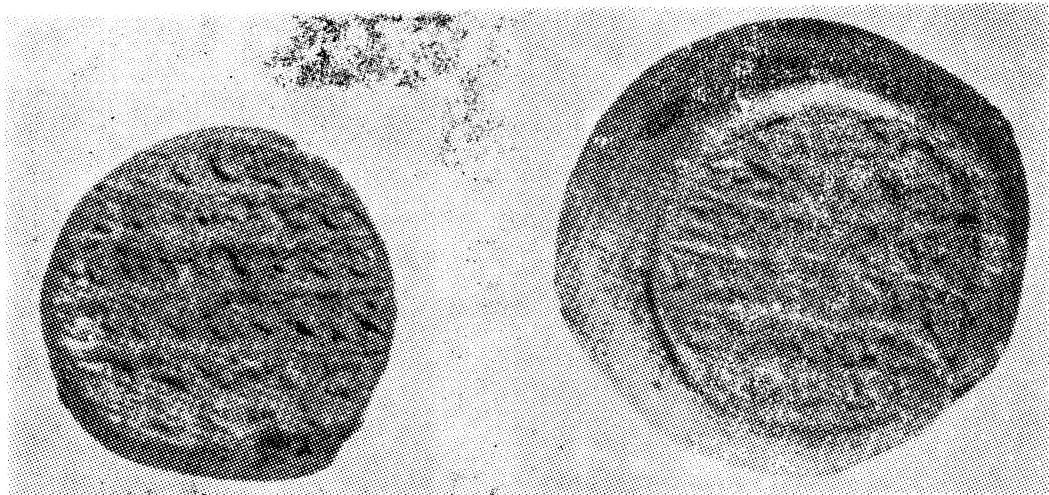


Fig. 22—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.16, Type F. Scale 3:1 (Neg. no. Dep. CS.LA 7335/8).

Fig. 23—Gudul-i Ahangaran. Sealing-protector Inv. no. GA.18, Type F'. Scale 3:1 (Neg. no. Dep. CS.LA 7350/5).



Fig 24—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.30, Type G. Scale 2:1 (Neg. no. Dep. CS.LA 7335/2).

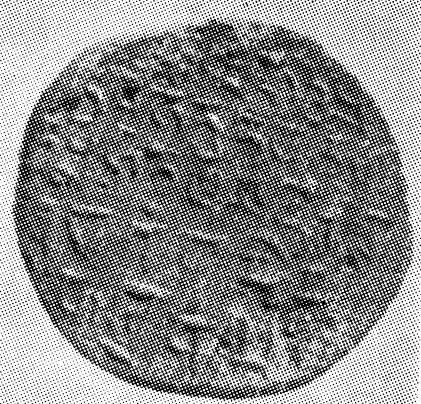


Fig. 25—Gudul-i Ahangaran. Inscribed clay tablet Inv. no. GA.34, Type G. Scale 2:1 (Neg. no. Dep. CS.LA 7333/7).



Fig. 26—Clay tablets from Ch'ien-fo-tung. National Museum, New Delhi.

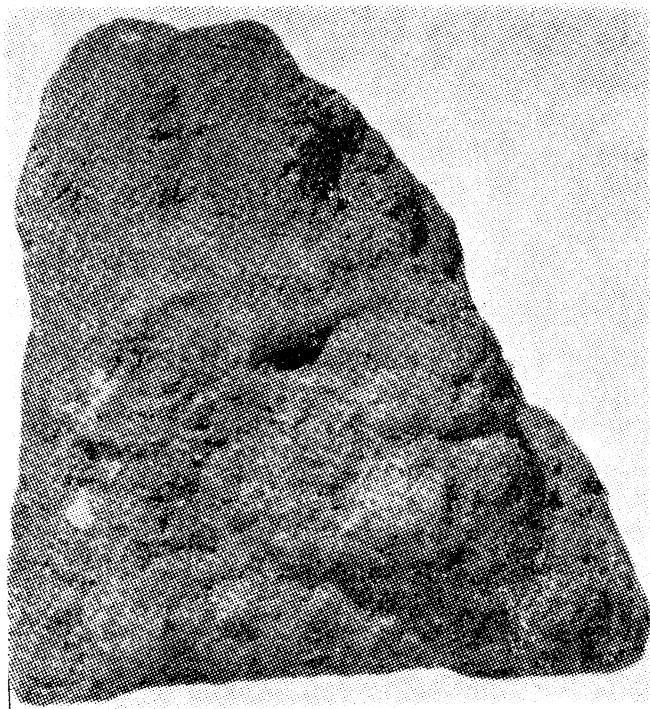


Fig. 27—Gudul-i Ahangaran. Clay ts'a ts'a with image of Buddha, Inv. no. GA.73. Scale 2:1 (Neg. no. Dep. CS.LA 788/7).



Fig. 28—Tapa Sardar. Clay plaque with image of Buddha, Inv. no. TS.947. Scale 2:1 (Neg. no. Dep. CS.LA 7378/8).



Fig. 29—Inscribed ts'a ts'a with representation of STUPA and Buddha, from Nalanda, Museo Nazionale d'Arte Orientale, Rome, Inv. no. 423 (Neg. no. B 232).



Fig. 30—Ts'a ts'a with representation of Buddha and STUPAS, from Nalanda, Museo Nazionale d'Arte Orientale, Rome, Inv. no. 421 (Neg. no. B 233).

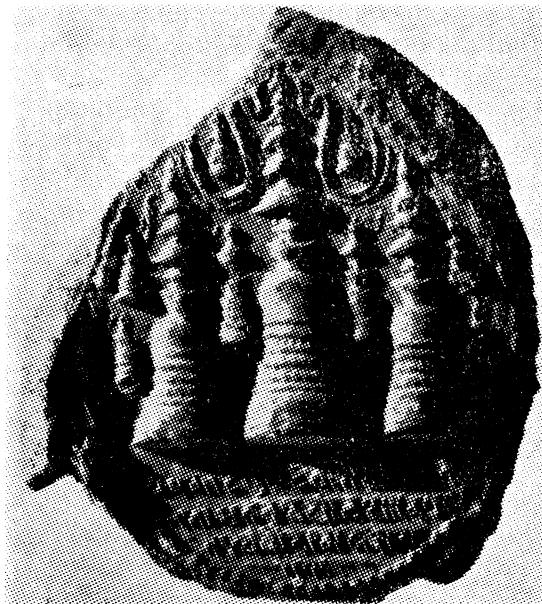


Fig. 31—Inscribed ts'a ts'a with representation of STUPAS, from Nalanda, Museo Nazionale d'Arte Orientale, Rome, Inv. no. 419 (Neg. no. B 235).

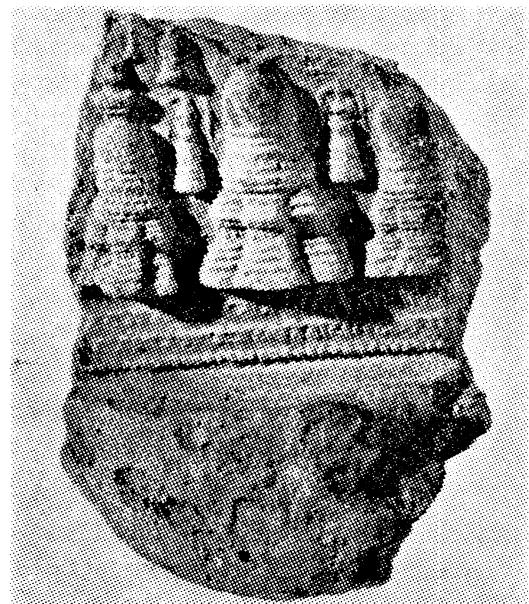


Fig. 32—Inscribed ts'a ts'a with representation of STUPAS, from Nalanda Museo Nazionale d'Arte Orientale, Rome, Inv. no. 425 (Neg. no. B 234).

Vogel clearly recognized that the clay tablets with the DHARMA-PARYA-YA, or profession of faith, were made for this purpose (45); he used as a basis a passage from I-tsing that is worth re-reading: "The priests and the laymen in India make Caityas or images with earth, or impress the Buddha's image on silk or paper, and worship it with offerings wherever they go. Sometimes they build Stupas of the Buddha by making a pile and surrounding it with bricks. They sometimes form these Stupas in lonely fields, and leave them to fall in ruins. Any one may thus employ himself in making the objects for worship. Again, when the people make images and Caityas which consist of gold, silver, copper, iron, earth, lacquer, bricks and stone, or when they heap up the snowy sand, they put in the images or Caityas two kinds of Sariras. 1. The relics of the Great Teacher. 2. The Gatha of the Ch'ain of Causation" (46). Vogel then notes that to give the formula of faith "a tangible shape, it had, of course, to be written on some object. Hence the occurrence of stone slabs or clay tablets, inscribed with the formula, inside STUPAS".

A passage from Hsuan-tsang, already noted by Marshall, is also extremely important. It shows us how it is possible for the miniature STUPAS to be found either resting on or near larger STUPAS, or placed inside them: "It is a custom in India to make little STUPAS of powdered scent made into a paste; their height is about six or seven inches, and they place inside them some written extract from a SUTRA; this they call a DHARMA-SARIRA (FA-SHI-LI). When the number of these has become large, they then build a great STUPA, and collect all the others within it, and continually offer to it religious offerings. This then was the occupation of Jayasena (Ching-kian); with his mouth he declared the excellent law, and led and encouraged his students, whilst with his hand he constructed these STUPAS (.....) During their thirty years he had made seven KOTIS (i.e. crores) of these DHARMA-SARIRA STUPAS, and for every KOTI that he made he built a great STUPA and placed them in it" (47).

This testimony even makes us doubt that the hypothesis proposed by Foucher (48)—that is, that the "simple clay balls, moulded or stamped with a seal, and without doubt within the reach of all pockets" can be explained by the "mania, innocent in itself, for souvenirs of travels"—can be valid in the case of the miniature STUPAS.

Besides, it is likely that the miniature STUPAS that have stamped on the outside the formula of faith, as is the case in the examples found by the Stein expedition and preserved in the National Museum in New Delhi (figs. 12, 13), do not contain clay tablets, and perhaps not even relics. On the other hand, Foucher had already shown that it was an illusion to think "que le STUPA n'était pour les Bouddhistes qu'un monument funéraire: nous savons de source certaine qu'il avait, à leurs yeux, une valeur religieuse indépendante des reliques qu'il pouvait, ou non, contenir" (49).

Above all in the period that interests us, it is clear that—as is also shown in the testimony of Hsuan-tsang—these small STUPAS represented the gift of the Law (50): if Javasena the saint taught the Law with words, he was just as busy with manual activity, in making small STUPAS, the DHARMAKAYA-CAITYAS. These are, then, STUPAS without relics, SARIRAS; but the DHARMA-PARYAYA is also SARIRA: along with the relics of the Enlightened One, as shown by I-tsing and Hsuan-tsang (51). Teaching and the making of small STUPAS therefore have the same meaning, that of the “gift of the Law”.

We cannot, however, completely share—without defining it chronologically—Foucher’s suggestive proposal: “Tel pieux moine, nous dit-on, connaît chaque jour de ses mains nombre de STUPA en miniature, exactement comme tel dévot brahmâne d’aujourd’hui occupe ses loisirs à modeler avec de la vase du Gange quantité de petits LINGA” (52). If, in fact, in the case of the LINGA it is the actual form of the modelled object that makes it sacred to the god or, rather, the symbol of the god (even if a special ritual is required by the AGAMAS for the production of MRNAYA-LINGAS) (53) the STUPA required a consecration that could be obtained by the placing in it of a relic or of a formula of faith: the alternative corresponds to the double aspect, devotional and speculative, of late Buddhism. We might even go along with Foucher when he affirms that “Nous pouvons aller plus loin et affirmer catégoriquement qu’il y a des STUPA qui n’ont jamais enfermé aucun dépôt de reliques” (54), but not so far as to believe that, at least in the period that interests us here, there may have been STUPAS not consecrated at least by the deposit of the profession of faith, whether this was written on a clay tablet (or its equivalent), or whether it was stamped on the STUPA itself, as in the case of the examples in the Museum in New Delhi (55).

Unfortunately, the problem cannot even be resolved by the precious testimony of Francke (56) who, in some ancient MOUND RTENS near Leh, came across some miniature STUPAS on which he carried out an interesting and courageous experiment: “When I threw one of them to the ground, it broke to pieces, and out of it came a very neat little tablet with an inscription in an ancient form of Sarada. The inscription again contains the YE DHARMA formula, and its characters belong to the 11th century. (...) Although I opened several more ‘miniature STUPAS’ in search of inscribed tablets, I did not find any other specimens”. It is regrettable that Franke does not describe for us the miniature STUPAS he “tested” in such a drastic way, neither those containing the profession of faith nor those without it.

Nor can we get more useful information from Marshall’s report on Raghra; he informs us that in mound H there “were the remains of some brick walls, and in the earth round about and above them were found a number of clay STUPAS, about 2” high and 1” in diameter at their bases (...) Inside each of them was a tiny tablet with the Buddhist formula ‘YE DHARMA HETU-PARBHAVA, etc.’ inscribed in characters of the eighth or ninth century”

(57). But we have no more precise information as to the shapes of these miniature STUPAS.

At Sravasti, in the ruins of the STUPA indicated as No. 5, Cunningham (58) found great numbers of clay seals, both burnt and unburnt, lying 1 foot above a regularly made floor of broken brick, $8\frac{1}{2}$ feet below the top of the walls". Cunningham was able to note the original position of some of them: one of them, of fired clay, with a small STUPA and an inscription of eighteen lines (the last three with the profession of faith), "was found along with a broken stupa of unburnt clay, in which it was most probably preserved". Likewise, the unfired-clay tablets (four different types, three large and one small) were placed within a protective shell, it too of unfired clay; in the case of the large types, this was a simple "ball of clay from $3\frac{1}{2}$ to 4 inches in diameter". The small clay tablets, on the other hand, that carry a five-line inscription with the profession of faith, and "are only three quarters of an inch in diameter, were always found in pairs (59), face to face, in the middle of a stupa of unburnt clay" and many of them "must have been put inside while still wet and soft, as they are nearly all more or less destroyed in shape by pressure".

This is also the case of Type F at Gudul-i Ahangaran (the smallest) which was certainly—at least in some cases—enclosed in a miniature STUPA after being covered, on the inscribed side, by a like protection of clay, that bears the imprint of the same seal, but in the negative (Type F') (fig. 23). One might ask if even in the case of the Sravasti examples this might not be a single sealing accompanied by a sealing-protector, rather than a pair of clay tablets of equal nature, as Cunningham thought.

The largest clay tablets at Gudul-i Ahangaran had no protection, though, as is shown both by the fact that these "negatives" have only been found in Type F, and by the imprint of a clay tablet of another type (fig. 11), visible inside miniature STUPA Inv. no. GA. 65; and this is supported by similar finds at Sravasti, as we have seen from Cunningham's description.

The relatively scarce number of clay objects found at Gudul-i Ahangaran did not permit me to carry out a direct and thorough examination of the miniature STUPAS, aimed at clarifying the position of the clay tablets inside them and the eventual associations of types. This can be done when more abundant material is available; for the moment, my main worry was to consolidate with acrylic resin the extremely fragile objects recovered.

In the case of STUPA Inv. no. GA. 64, the convex side of a clay tablet protruded through a crack (fig. 10), and it was not hard for me to extract it without damaging the piece. To my great surprise, I found that the other, flat, side was perfectly smooth, without the least trace of imprints either positive or negative; it would thus appear that this clay tablet did not serve to protect any sealing. It is indeed possible that it testifies to carelessness on the part of the maker, whose zeal in making these objects may not have been

on a par with the religious and symbolic value of the objects themselves. So that it would be wiser to refrain from making any interpretation of the remarkable fact.

* * *

Now that we have reviewed the material available, we must examine those terracotta objects that do have the imprint of seals of a religious nature but that, judging from their size and their greater complexity, must certainly have had a different use (figs. 29-32) (60). It is probably to these or to more humble but similar objects of unfired clay, like Inv. no. GA. 73 (fig. 27), and not to the clay tablets discussed earlier, that we should refer the descriptions from Tibetan texts quoted by Tucci; especially since, as we have seen, I-tsing himself places STUPAS and images (presumably die-cast) on the same level, while—if, as I think, Vogel's interpretation is correct—the small clay tablets were destined to consecrate the STUPAS and perhaps even the images themselves (61): impressed STUPAS and images that perhaps alone have the right to be called TS'A TS'A, with the small clay tablets excluded from this category. This may be confirmed by the fact that in Mongolia only the small STUPAS are given this name (62).

This explains, in quite a satisfactory way, why, except for a few specimens, the small clay tablets always carry the profession of faith, while images of STUPAS and deities are very seldom found on them. Are we to think that the small clay tablets that do not have the DHARMA-PARYAYA stamped on them contained a relic? To this question too it seems wiser to avoid an answer, for the moment.

In conclusion, while recognising that all the objects discussed up to now are—from the religious point of view—basically alike, we should at least distinguish three categories, from a functional point of view: 1) the miniature STUPAS; 2) the clay tablets with the profession of faith—sometimes accompanied by images of deities or of STUPAS—destined to consecrate the miniature STUPAS, or to be preserved in blocks of clay to be used as offerings; 3) blocks of clay stamped with one or more seals, larger in size than the clay tablets, perhaps destined for being carried away by pilgrims as souvenirs. As regards the miniature STUPAS, the impression one gets from the uniformity of the types in the different sites (63), corroborated by literary testimony, is that they were destined for mainly local use; but we cannot exclude the possibility that in some cases—and I-tsing suggests this—the miniature STUPAS were carried along as travelling shrines. The custom, mentioned earlier, of modelling small STUPAS during the journey, should not be thought of as widespread even outside Tibet and in ancient times.

FOOT NOTES—M. TADDI

- (1) The term GUDAL, that is apparently unknown to Persian lexicography, is probably to be explained as a derivation from Pashtu GUDAL, "(sheep-fold," "enclosure" (GED, "ra m", "sheep"). Nevertheless, the Persian-speaking people of Gazni consider it as a Persian word; my workmen at Gazni explained it to me as QAL- A-I KUCHIK, "a small QAL A". The entire toponym would thus mean something like "the enclosure of the blacksmiths".
- (2) From Paharpur (cf. note 9); from Kanheri (IA, 1961-62, pl. CXLVIII B, bottom left); from Ladakh, in the Siri Pratap Singh Museum, Srinagar (KAK 1923, fig. on p. 101; H.G. Franz, "Die Ausgrabungen in Nalanda und die Kunst des späten Buddhismus in Indien," INDOLOGEN-TAGUNG 1959, Göttingen, 1960, fig. 20); from So-yang-ch'eng (STEIN 1921, III, p. 1108, pl. CXXXIX); from Khàdalik (JBID., I, p. 194, pl. IX).
- (3) From Khara-Khoto, in the National Museum, New Delhi, Nos. KK.. 0090-0092, 0094-0097, 0100: ANDREWS, p. 241.
- (4) But cf., again from Kanheri, an example with the base cone highly developed (IA, 1961-62, pl. CXLVIII B, bottom right). The same can be said of the miniature STUPAS from Shravaṣṭī (CUNNINGHAM 1878, pl. XXVIII 4).
- (5) Tucci, P. 51, pl. IVb. For the type see too U. Scerrato, "A Short Note on Some Recently Discovered Buddhist Grottoes near Bamiyan, Afghanistan," EW, XI, 1960, pp. 107 ff., figs. 32 33 on p. 119, which suggests various comparisons. For the Tibetan examples, see too Francke, p. 64, pl. XXXI a; p. 87, pl. XXXVI a.
- (6) M. Taddei, "Tapa Sardar. First Preliminary Report," EW, XVIII, 1968, pp. 111, 115, figs. 6, 7, 22.
- (7) Cunningham 1878, pl. XVIII 4. cf. the specimen from Ladakh in the Srinagar Museum (Kak 1923, p. 100, fig. on p. 101), in which the four flights of steps have been completely misunderstood and look rather like pedestals for the minor domes.
- (8) A.H. Dani, INDIAN PALAEOGRAPHY, Oxford, 1963, pl. XIb. I frequently use the terminology proposed by this author, naturally without citing him each time.
- (9) Dani, op. cit., pl. XIIb.
- (10) Ibid.
- (11) G.H. Ojha, BHARATIYA PRACINA LIPIMALA, 3rd ed., Dilli, 1959, p. 67, pl. XXI.
- (12) "...properly only those who heard the law from the Buddha's own lips have the name sravaka" (M. Monier Williams, A SANSKRIT-ENGLISH DICTIONARY, S. V.).

- (13) J. E. Van Lohuizen-de Leeuw, "The "Stone Buddha" of Chiengmai and Its Inscription", AAs, XXIV. 1961, pp. 324-29.
- (14) Das, p. 72, pl. VI, above all no. 30.
- (15) Chandra-Dikshit, pp. 124 ff., pl. LIX b; Dikshit, pp. 83 f., pl. LIX i (Satyapir Bhita). Sahni, pp. 309 f., nos. F(d) 9-12, 13-18 (Sarnath). Acharya, p. 9, nos; B216-36 pl. IIIa (Mirpur Khas). The Prince of Wales Museum, Bombay also preserves some specimens from Tibet (Acharya, p. 10, nos. B297-301).
- (16) Cf. S. N. Chakravarti, "A Descriptive List of the Clay Seals in the Prince of Wales Museum", BULLETIN OF THE PRINCE OF WALES MUSEUM OF WESTERN INDIA, 3, 1952-53, p. 36.
- (17) Cunningham 1878, pp. 89 f., pl. XXVIII.
- (18) Cunningham 1892, pl. XXIV. cf. Tucci, p. 55.
- (19) Marshall 1911, p. 19.
- (20) Marshall-Konow, pp. 80 f.; Sahni, pp. 309 ff., nos. F (d)12(a), F(d)19-53.
- (21) Marshall 1906, pp. 96 f
- (22) STUPA of Birdaban: Cunningham, 1873, pp. 157 f., pl. XLVI (all the sealings from Birdaban are on lacquer).
- (23) Das, pp. 49-73.
- (24) Vogel 1906, pp. 80 f., nos. 25-27; Vogel 1907, pp. 60, 67; Sastri 1911, pp. 67, 72, nos. 13-15, 17, pl. XXXIV c (right); Sastri 1912, p. 139, pl. LVII, figs. 12, 13.
- (25) Cunningham 1878, pp. 37 f., nos. 12 ff., pl. XII.
- (26) Chandra-Dikshit, pp. 124 f., pl. LIX c, d, Dikshit, p. 84.
- (27) Kak 1933, pp. 107 f., pl. XVIII.
- (28) IA, 1954-55, p. 26. pl. XLIX B; IA 1955-56, p. 27, pl. XLIII B. cf. IA. 1958-59, p. 36, pl. XLVIII B.
- (29) IA, 1961-62, p. 101, pl. CXLVIII A.
- (30) Cousens, pp. 87 f., pl. XXXIX: Bhandar Kar, p. 94, pl. LVIII b.
- (31) Rea, p. 170, pl. LX.
- (32) Ko, pp. 122 f., XLIX; Duroiselle 1912, pp. 145 f.; Duroiselle 1927, pp. 182 f., pl. XLII a-c
- (33) Tucci; Francke, PASSIM.
- (34) Dacca Museum: Bhattasali, p. 68, no. 2. Indian Museum, Calcutta: Francke, pp. 111 f. Fratap Singh Museum, Srinagar: Francke, pp. 114 ff.—, Kak 1923, pp. 102, 105, figs. on pp. 103, 104. Nalanda Museum: ASIAR-CENTR, 1920-21, pl. IV, no. 2139; Chandra, p. 281, pl. CXL c, nos. 1, 2. Museum of Archaeology, Sarnath: Sahni, pp. 309-13. Government Museum Madras: Aiyappan-Srinivasan, p. 52 (from Sankaram and Ramatir-tham). Prince of Wales Museum of Western India, Bombay; Acharya, pp. 6-10.
- (35) Andrews, p. 214- nos. Ch. 04, 06-013. For these and other clay tablets from Ch'ien-fo-tung and other sites in Central Asia, see Stein 1928, p.

- 43, pl. XI (Yasin); p. 361, pl. XLIX (Ch'ien-fo-tung); p. 500, pl. LIII (Khara-Khoto).
- (36) Spooner, p. 43, fig. 2.
- (37) This is the case with the examples from Kasya published by Carleyle, p. 70: "At the back of the temple I also found upwards of twenty terra-cotta or burnt clay seals, with the Buddhist profession of faith impressed upon them in characters of a later (i.e., than the 5th cent. A.D.) period. The largest of these seals had also three stupas represented on it in bold relief." Cf. Vogel 1906, p. 80.
- (38) Tucci, pp. 34 ff.
- (39) Tucci, p. 54
- (40) Cousens, p. 88.
- (41) See e.g., E. Schlagintweit, BUDDHISM IN TIBET ILLUSTRATED BY LITERARY DOCUMENTS AND OBJECTS OF RELIGIOUS WORSHIP, London, 1863, p. 194.
- (42) Tucci, pp. 57 ff. A mould for making TS'A TS'AS is reproduced by W. Filchner, DAS KLOSTER KUMBUM, Berlin, 1906, pl. 38; cf. S. Hummel, GESCHICHTE DER TIBETISCHEN KUNST, Leipzig, 1953, pp. 76 f., fig. 59. A mould from Mirpur Khas is preserved in the Prince of Wales Museum, Bombay: Acharya, p. 7, no. B90/8.
- (43) Schlagintweit, op. cit., pp. 194, 206.
- (44) Ibid., p. 194.
- (45) Vogel 1906, p. 80; see also Sahni, p. 309, no. F(d)9 etc. For the filling of STUPAS in a later period, cf. J. Kalsang, "Grundsätzliche zur Fullung von mCod rten", ZENTRALASIATISCHE STUDIEN, 3, 1969, pp. 51-53.
- (46) I-Tsing, A RECORD OF THE BUDDHIST RELIGION (transl. J. Takakusu), London, 1896, p. 150.
- (47) S. Beal, BUDDHIST RECORDS OF THE WESTERN WORLD, repr., New York, 1968, II, pp. 146 f.; cf. Marshall 1906, p. 97. Stein's witness is also of extreme importance (Stein 1928, p. 445): "As shown by corresponding observations at all Stupas outside the walls (of Khara-Khoto), these little model Stupas had been originally packed by the hundreds within the hollow drum resting on the top of the Stupa base and also around the wooden shaft passing through the bulb portion of the Stupa proper". Cf. Stein 1921, III p. 1105.
- (48) Foucher 1917, p. 11.
- (49) Foucher 1905, p. 52.
- (50) Tucci, p. 27.
- (51) For the possibility of substituting the profession of faith alone for the relics, see the canonical book Tsao-t'a-kung-te-king, quoted by Tucci, p. 28, note 3.
- (52) Foucher 1905, p. 52. It should be noted that the linga-stupa parallel was fashionable with European scholars down to the beginning of this

century: see, for example, E.B. Havell, THE IDEAS OF INDIAN ART, London, 1911, p. 87: “(...) Siva's LINGAM (...) was in all probability derived from the votive STUPA of Buddhism;” Id., The ANCIENT AND MEDIAEVAL ARCHITECTURE OF INDIA, London, 1915, pp. 106 f.; Kak 1923, p. 102. Only the basic work by T.A. Gopinatha Rao, ELEMENTS OF HINDU ICONOGRAPHY, II 1. Madras, 1916, gave an accurate picture of the entire question of the cult of the SIVA-LINGA.

- (53) Rao, op. cit., p. 76.
- (54) Foucher 1905, p. 53.
- (55) A clay STUPA from Ladakh, presumably from Francke's expedition, has the creed stamped on the under-surface of its base: Kak 1923, p. 102 and figure.
- (56) Francke, p. 82.
- (57) Marshall 1906, pp. 96 f.
- (58) Cunningham 1878, pp. 88 ff.
- (59) Cunningham advances the theory that, of the objects he describes, those containing the paired clay tablets were “family offerings”.
- (60) The examples reproduced, probably from Nalanda, are preserved in the Museo Nazionale d'Arte Orientale, Rome.
- (61) Four sealings containing, in all probability, the Buddhist creed are visible on the back of an image of Lokanatha in octo-alloy metal from Bandarbazar, Sylhet. Though “the letters are too worn to be decipherable”, it seems that the script is to be dated on the ground of style to the 8th-9th cent. A.D. (Bhattachari, p. 25, pl. V). These sealings are very similar to tablets of Types E and F from Gudul-i Ahangaran.
- (62) P.S. Pallas, SAMMLUGEN HISTORICHER NACHRICHTEN UBER DIE MONGOLISCHEN VOLKERSCHAFTEN, II, St. Petersburg, 1801, pp. 108, 211 (quoted by Schlagintweit, op. cit., p. 194, note 1).
- (63) Cf. Stein 1921, III, p. 1105: “(the miniature STUPAS from a site near So-yang-ch'en) had all been reproduced from a few moulds”.

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Fouilles d'Ai Khanoum

Par M. Paul Bernard

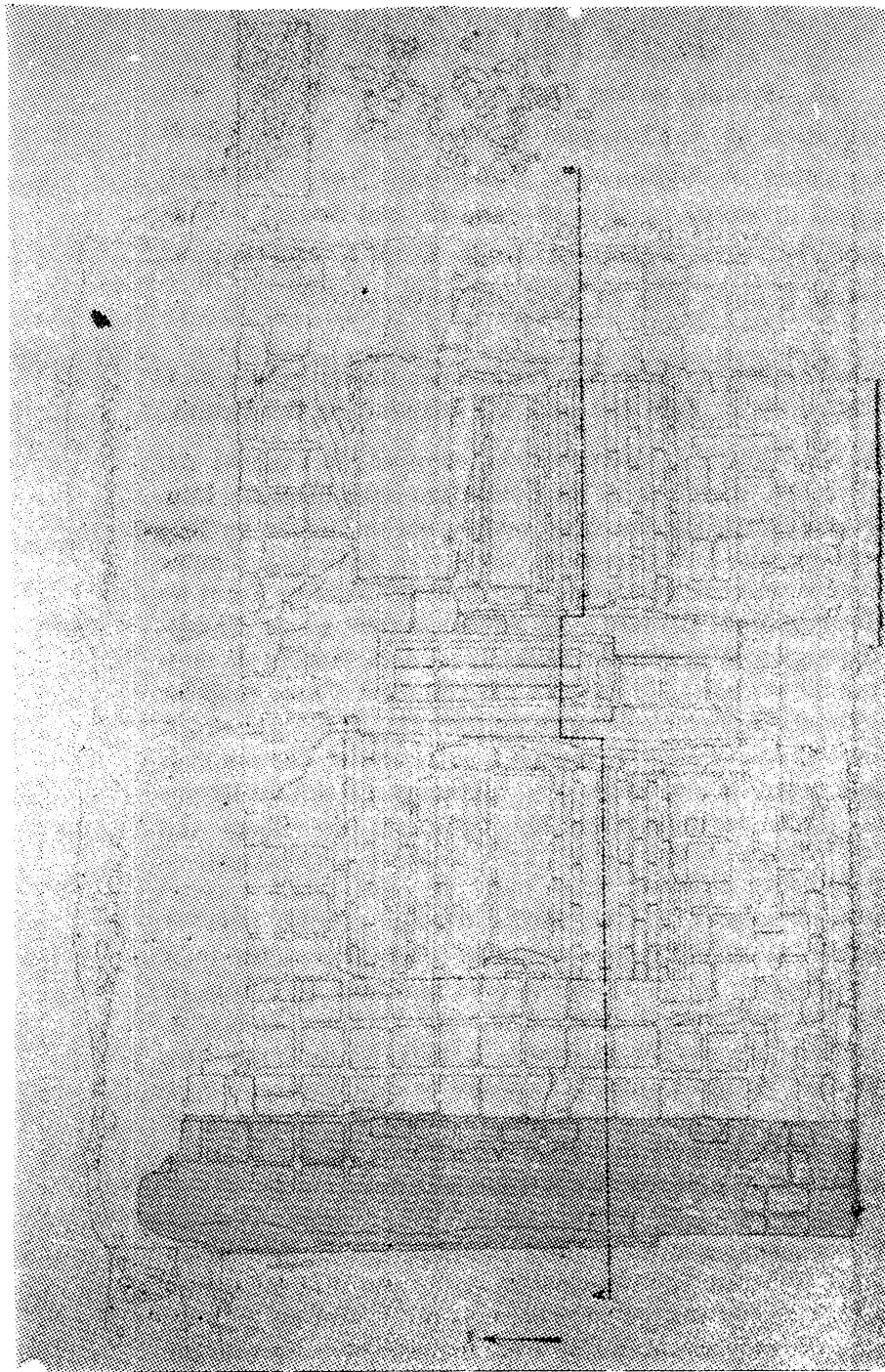
Mr. Bernard writes in this article about the 8th excavation of Ai-Khanoum by the French Archeological Delegation in Afghanistan. The project was undertaken in 1961 in two parts: May 10 -June 25, and August 5-October 5. The three important finds were a cemetery, a central Temple, and an administrative quarter.

M. Louis ROBERT, membre de l'Académie, donne lecture de la communication de M. Paul Bernard. Il l'introduit en ces termes :

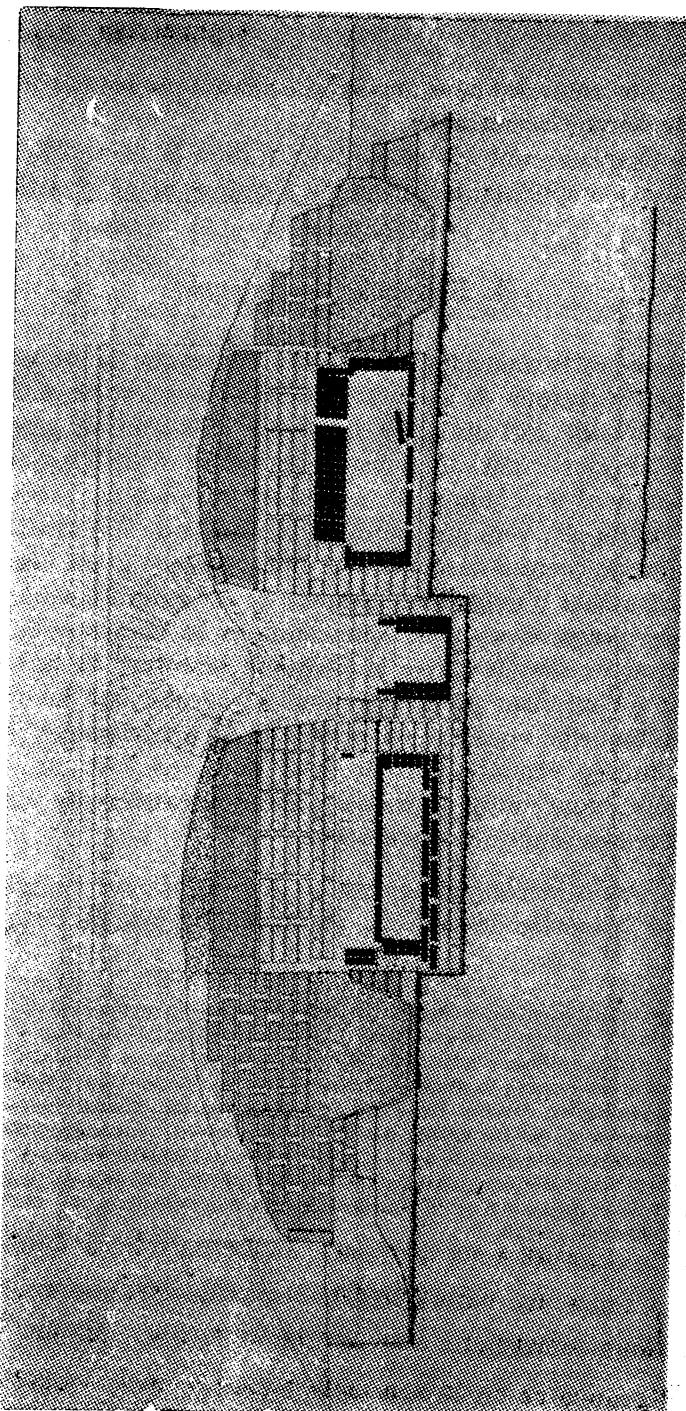
Je vais vous lire la communication envoyée de Kaboul par M. Paul Bernard, directeur de la Délégation archéologique française en Afghanistan, sur ses deux campagnes de fouilles en 1971 dans la ville grecque à Ai Khanoum sur la rive de l'Oxus. Comme vous en avez le souvenir et comme vous le savez aussi en lisant les *Comptes Rendus*, Paul Bernard nous envoie chaque année un rapport sur le progrès de sa grande fouille. Il est actuellement de nouveau au travail sur place. Je ne veux pas commencer sans rappeler en quelques mots le souvenir de notre confrère Daniel Schlumberger, tout récemment enlevé à ses travaux et à notre amitié. Car son nom restera étroitement lié à la fouille d'Ai Khanoum. Le site fut découvert d'une façon fortuite quand les habitants du village ont exhumé un chapiteau — c'était un chapiteau corinthien — entièrement différent de tout ce qui était connu dans les antiquités du pays. Daniel Schlumberger, alors directeur de la Délégation française, comprit aussitôt qu'il était sur la trace de ce qu'il désirait plus que tout découvrir en Afghanistan, un site grec. Il obtint d'aller sur les lieux — exactement à la frontière soviéto-afghane —, puis d'y entamer des fouilles ; et c'est lui qui a conduit la première exploration et en a rendu compte. Il me paraît assuré que ce début de fouilles à Ai Khanoum et la découverte des deux inscriptions du roi Asoka à Kandahar ont été les plus grandes satisfactions de sa vie de savant.

La huitième campagne de fouilles conduite par la Délégation archéologique française en Afghanistan sur le site d'Ai Khanoum s'est déroulée en deux temps, au printemps du 10 mai au 25 juin, en été du 5 août au 5 octobre¹. Elle a été financée pour les voyages du personnel scientifique, la main-d'œuvre et le petit matériel par une subvention de la Commission des recherches archéologiques françaises à l'étranger (Direction générale des relations culturelles, scientifiques et techniques du Ministère des Affaires étrangères).

1. Pour la bibliographie des campagnes précédentes, voir *CRAI*, 1970, p. 301, n. 1. Ajouter *CRAI*, 1971, p. 385-453.



PLAN 1. — Mausolée : états III et IV (dessin de J. Cl. Liger et J. Rougetet).



PLAN 2. — Mausolée : coupe est-ouest A-B (états II, III, IV) (dessin de J.-Cl. Liger et J. Rougetet).

Deux de nos véhicules nous avaient été alloués par le Centre National de la Recherche Scientifique.

Trois chantiers ont été en activité : dans la nécropole hors-les-murs, dans le sanctuaire du temple à redans et au quartier administratif¹.

I. Nécropole hors-les-murs².

La découverte marquante de cette campagne a été celle d'un monument funéraire de la nécropole hors-les-murs (plans 1 et 2).

La trouvaille fortuite d'un fragment d'inscription grecque qui nous fut apporté par un pâsan du village d'Aï Khanoum nous conduisit dans les champs de ce dernier, au pied du versant nord-est de l'acropole, vers une petite butte haute de 2 mètres et d'une quinzaine de mètres de diamètre, d'où la pierre avait été extraite lors de travaux d'irrigation. L'espoir de recueillir les compléments de l'inscription, dont nous soupçonnions le caractère funéraire³, et de trouver sous le tertre la première sépulture de la nécropole grecque à l'extérieur de la ville nous fit décider une fouille immédiate à laquelle voulut bien consentir le propriétaire⁴. De cette fouille, menée pendant plus de deux mois, est sorti un mausolée de famille, dont nous décrirons d'abord les différents états, puis les différentes sépultures qu'il abrita.

A. *L'architecture du monument.* — A l'origine, sur l'emplacement du futur mausolée ne se dresse qu'un mur de pisé de direction est-

1. Le personnel scientifique comprenait, outre les membres permanents de la D.A.F.A. (Paul Bernard, directeur ; Jean-Claude Liger, dessinateur ; Henri-Paul Francfort et Serge Veuve, archéologues adjoints) : M^{me} Isabelle Sortais et Élisabeth Bennigsen, assistantes-archéologues ; M. Jacques Dumaret, assistant-archéologue ; M^{me} Dominique Liger, céramologue ; Jacques Rougetet, architecte adjoint ; Rémy Audouin, restaurateur-archéologue, qui fut assisté par M. Sadek Farhazi, représentant de l'Institut afghan d'archéologie auprès de notre mission. A tous ces collaborateurs, je tiens à dire mes très vifs remerciements, ainsi qu'à toutes les autorités afghanes du Ministère de la Culture et de l'Information et du Ministère des Affaires étrangères, qui nous accordent toutes facilités de travail.

2. Ce chantier a été dirigé par P. Bernard et J. Dumaret.

3. A cause des mots *tόπον* et *oίχειος* que nous y lisions.

4. Nous remercions bien vivement celui-ci, Shukur Beg, de

son obligeance et de la souriante patience avec laquelle il accepta l'irruption d'étrangers et leur va-et-vient incessant à quelques pas de la yourte familiale. Nous ne saurions oublier dans ces remerciements M. Sadek Farhazi, dont la diplomatie sut aplanir pour nous toutes les difficultés dans une négociation délicate.

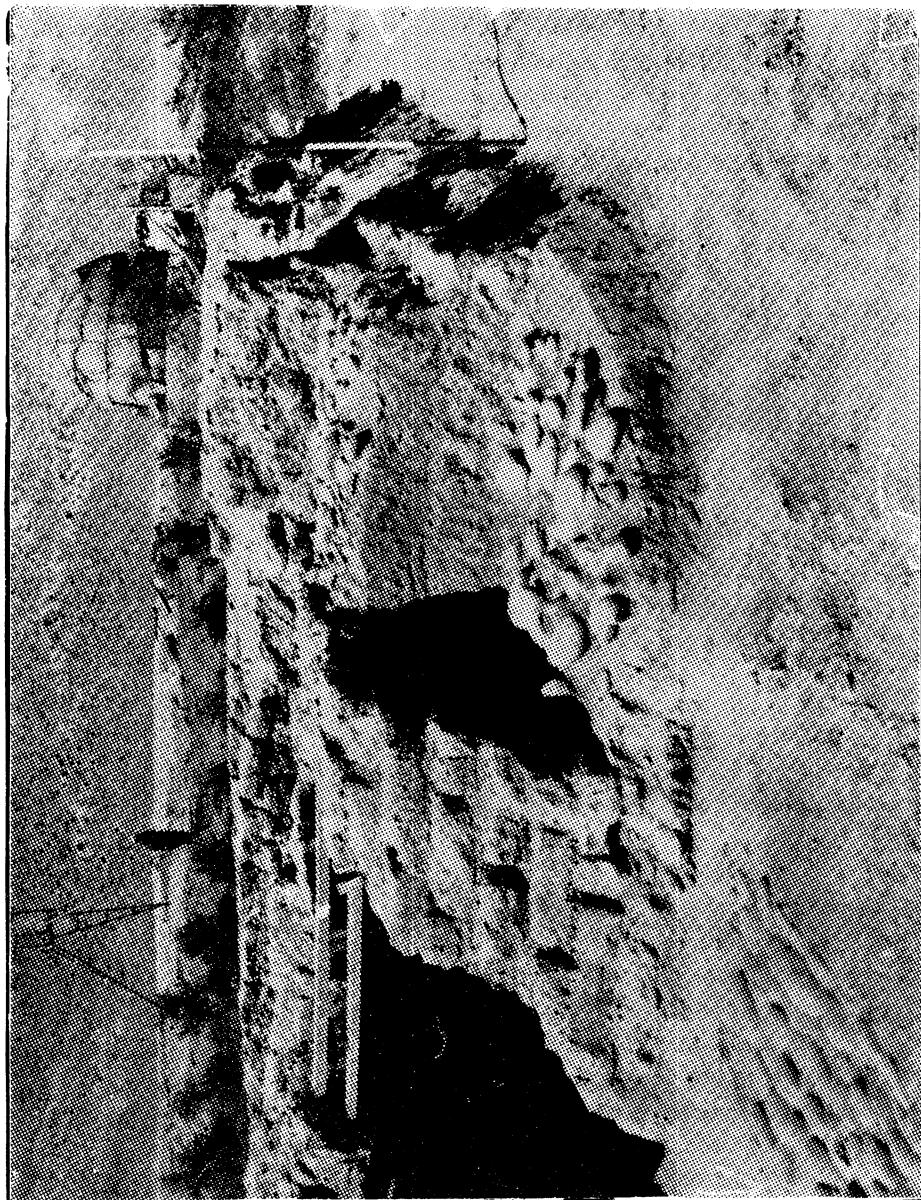


FIG. 1. — Sondage dans le mur en pisé nord des états I et II montrant des nappes de galets étagées.

ouest, épais de 1 m. 80, comportant des lits de galets étagés. Ce mur devait servir de limite entre des concessions funéraires mi-toyennes (état I) (fig. 1).

L'étape suivante (état II) est marquée par l'édification d'une construction rectangulaire (11 mètres × 8 mètres) avec entrée probable au Sud, à laquelle le mur de pisé I servit de limite nord, les trois autres côtés étant faits en briques crues. Ces murs ayant été presque entièrement détruits par les édifices postérieurs et l'étendue intérieure qu'ils délimitaient complètement bouleversée,



FIG. 2. — Mausolée : vue générale depuis le Sud-Ouest.

nous en sommes réduits aux hypothèses sur l'aspect et la fonction de cette construction. Peut-être s'agissait-il d'un simple péribole enfermant un groupe de tombes. A l'extérieur, près de l'extrémité est de la façade sud, subsistaient les restes d'un petit autel en briques crues.

Le péribole II fut rasé pour faire place à un véritable mausolée qui, avec certaines modifications, resta en usage jusqu'à la fin de l'occupation grecque (état III) (Plan 1). Ce mausolée, qui vint s'adosser au mur de pisé nord, se présentait comme un édifice rectangulaire de 9 mètres sur 6, en partie souterrain (profondeur de la partie sous terre : 80-90 centimètres) (fig. 2 et 3). Le bâtiment était visible au-dessus du sol sur une hauteur que nous estimons à un peu plus de 2 mètres. Au milieu du long côté sud s'ouvrait une porte d'entrée

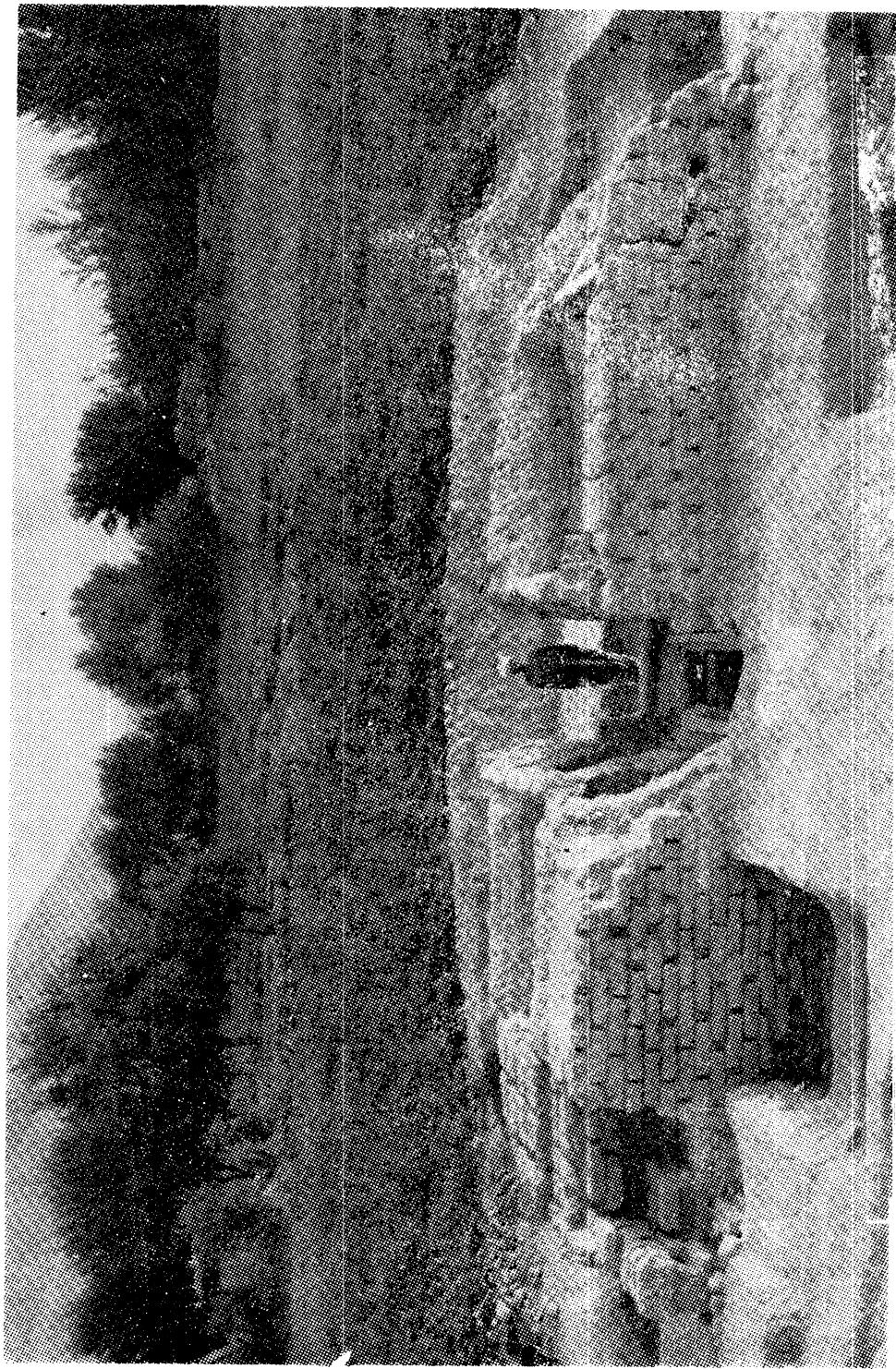


Fig. 3 --- Mausolée des états III et IV vu du Nord, après démolition du mur de pise nord de l'état I.

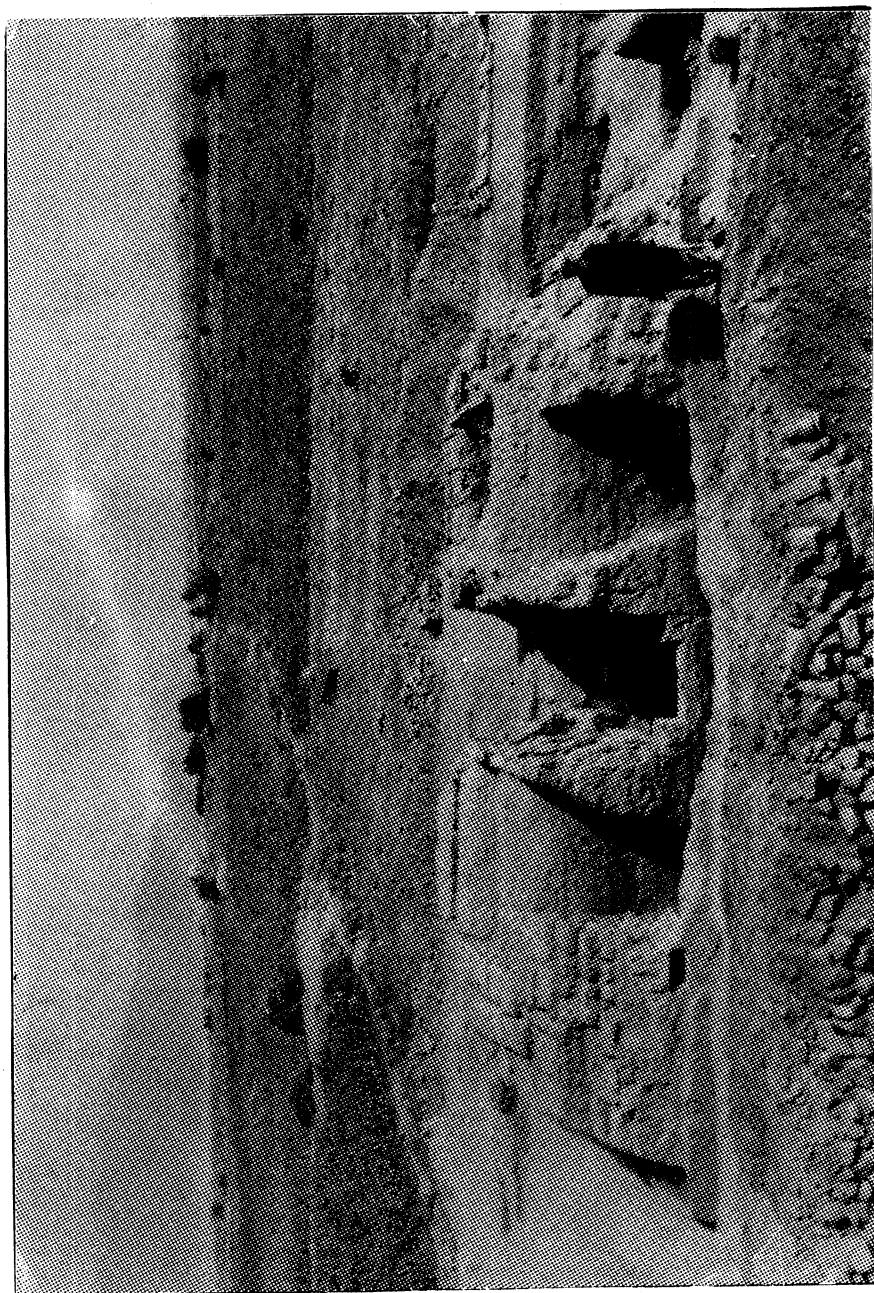


FIG. 4. — Mausolée : sondage dans l'élevation du mur sud de l'état IV a montrant les restes du mur sud de l'état III de part et d'autre de la porte d'entrée.

qui donnait accès, à 80 centimètres en contrebas, à un couloir nord-sud, long de 4 mètres et large de 1 m. 40, sur lequel ouvraient de chaque côté, en vis-à-vis, deux caveaux voûtés (Plan 2). Ces caveaux, bâtis comme le reste de la maçonnerie en briques crues, sont longs de 2 m. 70 et larges de 1 m. 10, le sommet des voûtes étant à 1 m. 60 du pied des murs (fig. 6 et 9). Le couloir était lui aussi couvert par une voûte, qui s'était effondrée, mais dont l'existence est assurée par les restes des deux assises de départ qui prenaient appui sur les voûtes latérales des caveaux. La présence au-dessus des voûtes d'un remblai de galets et de terre impose de restituer un toit plat, sans doute en briques crues et enduit de torchis, porté par ce remblai et la voûte du couloir.

Dans les états suivants (IV *a* et IV *b*) le mausolée subit une grosse réfection, lors de laquelle on abattit les murs extérieurs est, sud et ouest pour les remplacer par des murs nouveaux construits sur le même tracé. Des murs anciens ne subsistent que quelques chicots qui furent préservés intentionnellement : au fond des caveaux pour éviter de mettre à nu les jarres funéraires ou les sarcophages déjà installés (fig. 10) ; — de part et d'autre de la porte d'entrée où, sur deux sections de 1 mètre de long, le mur ancien sud est conservé jusqu'à hauteur de la voûte du couloir (fig. 4). C'est précisément pour empêcher l'effondrement de la partie antérieure de cette voûte que, lors des travaux de réfection de l'état IV *a*, ces deux pans de mur sur lesquels elle s'appuyait furent maintenus.

Les murs nouveaux, un peu plus épais que les précédents (1 m. 50), furent assis plus solidement sur de puissantes fondations de galets maçonnés au pisé. En même temps la voûte du caveau nord-est fut légèrement allongée à son extrémité est pour permettre la construction d'un sarcophage un peu plus long que ceux des autres caveaux.

Les raisons de cette réfection considérable nous échappent. La dernière modification apportée au mausolée fut l'adjonction d'un mur de doublage appliqué contre le mur ouest (état IV *b*) (fig. 5). Ce mur ne doit sans doute pas être considéré comme faisant partie du mausolée, mais comme appartenant à un ensemble architectural à ciel ouvert qui se serait étendu à l'Ouest du monument.

B. *Les sépultures.* — Les sépultures qu'abritait le mausolée étaient de deux sortes : des sarcophages en briques cuites faits pour des inhumations ; des jarres funéraires dans lesquelles on avait procédé à la réinhumation d'ossements retirés de tombes que l'on voulait réutiliser ou que l'on avait été amené à détruire.

Quatre sarcophages en briques cuites avaient été construits dans les caveaux nord-est (n° 1), sud-est (n° 2), sud-ouest (n° 3)

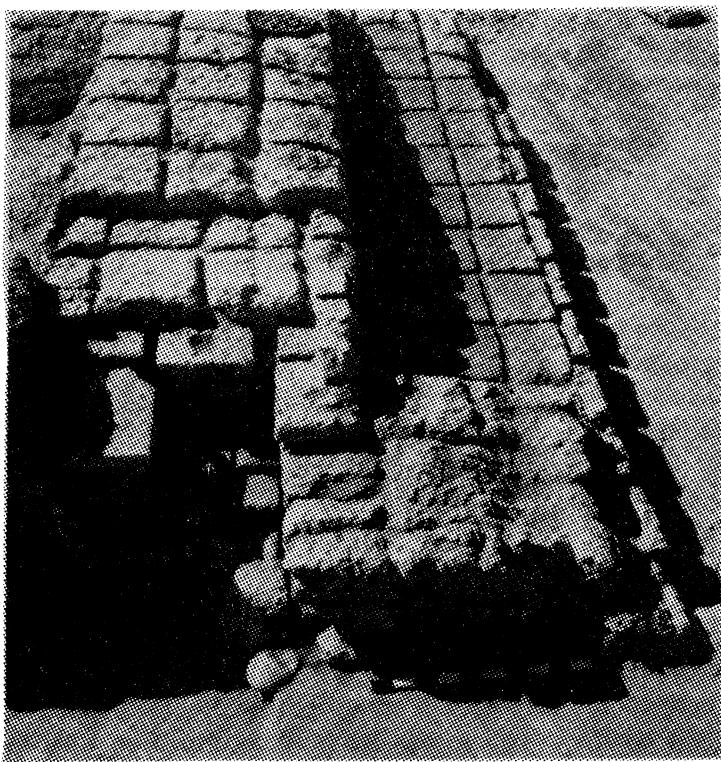


FIG. 5. — Mausolée : murs ouest des états IV a et IV b, vus du Nord avec jarre funéraire dans le mur IV a.

et, en dernier lieu, dans le couloir central¹. Deux d'entre eux avaient été pillés par les fouilleurs clandestins (n° 1 et sarcophage du couloir) (fig. 7). Les cuves intactes sud-est et sud-ouest ont été découvertes cachées sous un blocage de briques crues qui remplissait entièrement les caveaux jusqu'au sommet des voûtes² (fig. 8). Le matériel funéraire exhumé de ces deux tombes était fort pauvre et se composait essentiellement de quelques vases. Nous avons cependant recueilli un objet fort intéressant : il s'agit d'une pyxis en schiste gris-bleu³ dont le couvercle est décoré de motifs géomé-

1. En même temps que ce sarcophage on construisit un escalier de briques crues qui descendait jusqu'au niveau de sa cuve (cf. fig. 7).

2. Signalons qu'un cinquième sarcophage très rudimentaire fut découvert à l'extérieur du monument, près de l'angle nord-est.

3. Cette pierre, de même nature que les phyllades schisteuses dans lesquelles sont taillés les reliefs gréco-bouddhiques du Gandhara (L. Courtois et P. Bordet, *Arts asiatiques*, IX, 1962-63, p. 107-113), ne se trouve pas dans les formations géologiques de l'Hindoukoush ni de la plaine bactrienne. Elle a certainement été importée des régions montagneuses au Sud de l'Hindoukoush.

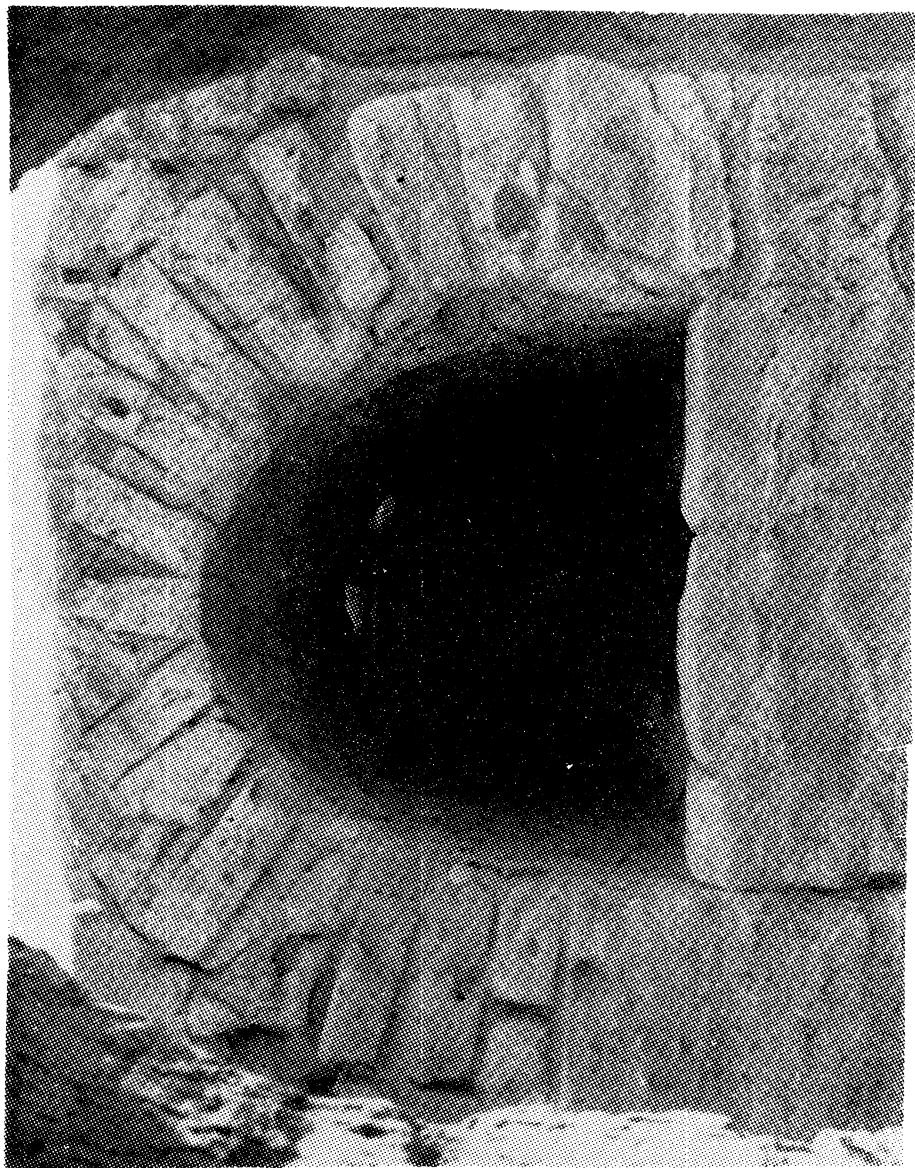


FIG. 6. — Mausolée : voûte du caveau sud-est.

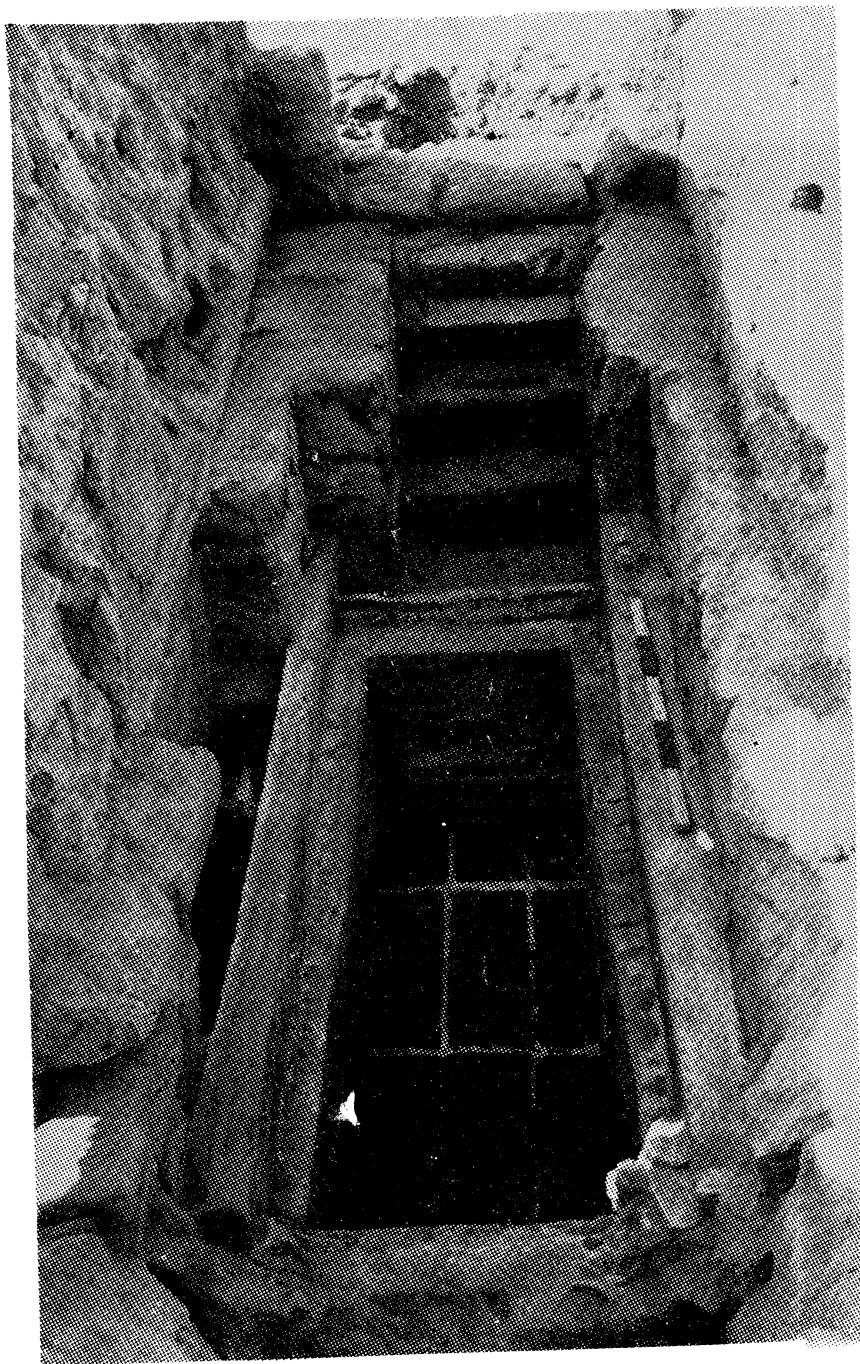


FIG. 7. — Mausolée : sarcophage construit dans le couloir,
vu du Nord.

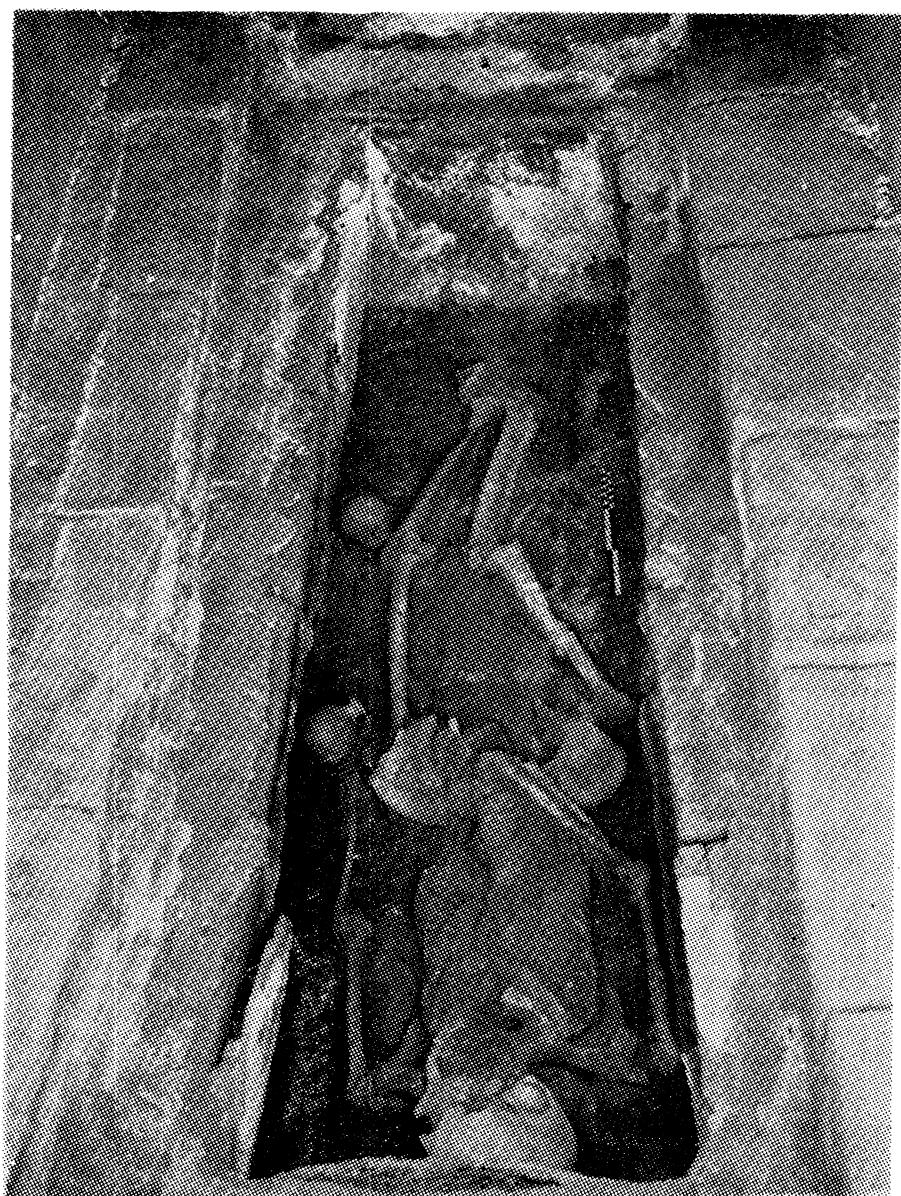


FIG. 8. — Mausolée : sarcophage du caveau sud-ouest, ouvert.

triques incrustés en pierres colorées (fig. 12). Le réceptacle a la forme d'une cupule compartimentée en trois sections rayonnant autour d'un compartiment cylindrique central. Le couvercle, légèrement bombé, est muni d'un bouton de préhension. Cet objet de la toilette féminine — boîte à fards ou coffret à bijoux — n'est que le mieux conservé et le plus richement ouvragé de nombreux exemplaires de même type que nous avons trouvés dans les maisons d'habitation¹ et qui constituent une création originale de l'artisanat gréco-bactrien. On ne sera pas surpris de retrouver à l'époque kouchane ce type de coffret en pierre utilisé comme reliquaire bouddhique sur les terres imprégnées d'hellénisme du Gandhara occidental, près d'Alexandrie du Caucase (monastère de Qol-i-Nader)², dans la plaine de Nangarhar-Dionysopolis (stupa de Darunta)³ ainsi que dans la vallée du Swat.

Le caveau nord-ouest (n° 4) avait été réservé à des réinhumations en jarres. Les trois plus anciennes avaient été faites simultanément dans trois jarres alignées côté à côté contre le pied du mur ouest (fig. 9). Elles portaient inscrits à l'encre les noms des défunt dont elles contenaient les restes : *τοῦ μικροῦ καὶ τῆς μικρᾶς*, « du petit et de la petite », *Λυσανίου Ἰσιδώρας* « de Lysanias et d'Isidora », les parents sans doute des premiers, *Κοσμοῦ* « de Cosme ». Il est à peine besoin de souligner l'importance de ces graffittes pour l'étude de la composition ethnique de la population coloniale d'Aï Khanoum. Lysanias est un beau nom macédonien que l'on retrouve dans l'une des grandes familles de Doura-Europos⁴. Il est tout à fait vraisemblable qu'à Aï Khanoum, comme à Doura et à Séleucie de l'Eulaios⁵, les Macédoniens et les gens de la Grèce du Nord (Kinéas le fondateur, la famille de Triballos) appartenaient à l'aristocratie gouvernante

1. Maison du quartier sud de la ville et surtout maisons tardives du sanctuaire du temple à redans, où nous avons la preuve que les récipients en schiste sont des objets de récupération ramassés dans les habitations de la période grecque.

2. J. Meunié dans *Diverses recherches archéologiques en Afghanistan, 1933-1940* (*Mémoires D.A.F.A.*, VIII, 1959), p. 123-125, fig. 262 et 263. Grâce à l'obligeance de M. Motamédi, directeur général du Musée de Caboul, à qui j'exprime ma très vive reconnaissance, j'ai pu examiner l'objet conservé dans ce musée. La cupule comporte quatre compartiments autour d'un compartiment central cylindrique. Le décor, limité au couvercle, est gravé. Ce que J. Meunié décrit comme une frise de lotus est en fait un bandeau d'oves stylisées. Le bouton de préhension est creux et forme godet. Comme sur le reliquaire de Darunta (cf. ci-après), ce godet devait comporter à l'origine un petit couvercle. Il est donc fort probable que l'emploi de ce coffret comme reliquaire dans le stupa de Qol-i-Nader n'est qu'une réutilisation. Même type de bouton creux sur le reliquaire de Bimaran : A. H. Wilson, *Ariana Antiqua*, Londres, 1841, p. 70-71, pl. II, 1; St. Konow, *Corpus Inscriptionum Indicarum, The Kharoshthi Inscriptions*, n° XVII, pl. X, 2.

3. A. H. Wilson, *op. cit.*, pl. I, 1.

4. J. Johnson, *Dura Studies*, Philadelphia, 1932, p. 17-34 et le tableau généalogique pl. II ; C. B. Welles, *The Excavations at Dura-Europos, Final Report*, V, 1 (*The Parchments and Papyri*), n° 25, 1, 3.

5. L. Robert, *Gnomon*, 35, 1963, p. 76 ; G. Le Rider, *Suse sous les Séleucides et les Parthes*, p. 285.

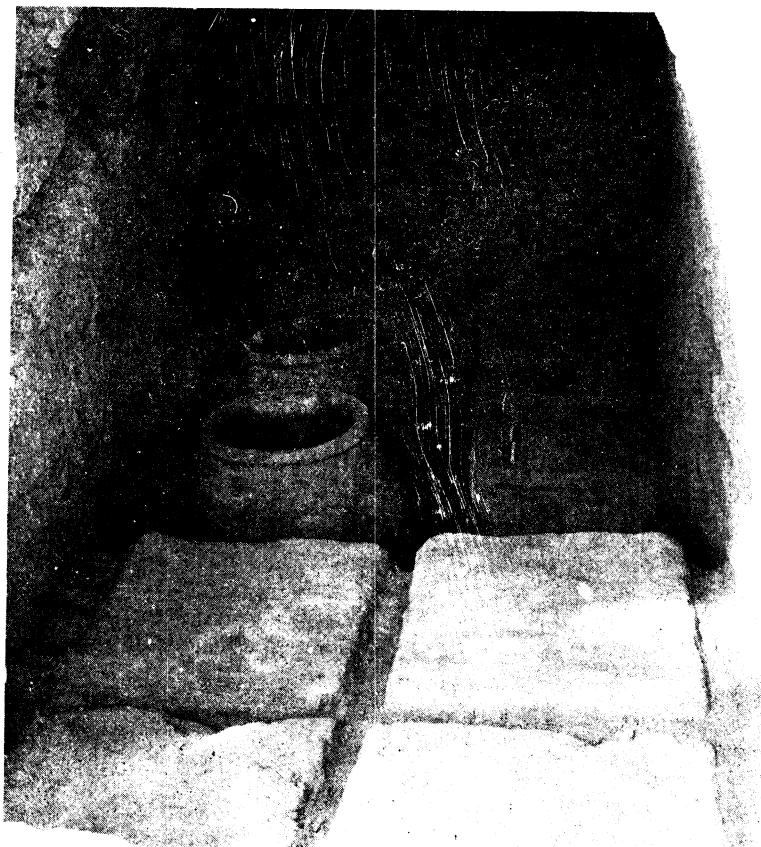


FIG. 9. — Mausolée : caveau nord-ouest avec les jarres funéraires inscrites en place.

de la ville. Le nom théophore d'Isidôra apporte de son côté un précieux témoignage sur la diffusion du culte d'Isis dans l'Orient hellénisé. Jusqu'à présent nous ne le connaissons pas au delà de l'Iran, où il est attesté par un petit bronze de Néhavend, pris à tort pour une Déméter¹, et, indirectement, par l'existence d'un sanctuaire de Sarapis en Hyrcanie dès le temps d'Antiochos Ier². Voilà maintenant ses limites repoussées jusqu'aux confins extrêmes de la colonisation grecque en Asie Centrale.

1. R. Ghirshman, *Parthes et Sassanides*, fig. 23. La méprise est passée dans M. Colledge, *The Parthians*, fig. 28a. L'identification est assurée par la coiffure isiaque : disque solaire entre deux épis, surmonté de deux plumes. Dans la main droite disparue, il faut probablement restituer le gouvernail : comparer les représentations d'Isis-Fortuna : V. Tran Tam Tinh, *Le culte des divinités orientales à Herculaneum*, 1971, fig. 9-13.

2. L. Robert, *Hellenica*, XI-XII, 1960, p. 84-91, inclus maintenant dans L. Vidman, *Sylloge inscriptionum religionis Isiacae et Sarapacae*, 1970, n° 369. Ni l'interprétation de C. B. Welles (*Historia*, 11, 1962, p. 290-293 : culte établi par Alexandre), ni celle de P. M. Fraser (*Opuscula Atheniensia*, 7, 1967, p. 29-31 : culte privé d'une colonie étrangère) ne nous paraissent soutenables. Il n'y a rien à changer au commentaire de L. Robert.



FIG. 10. — Mausolée : caveau nord-ouest, vidé.
Dans le fond, les états III et IV à superposés au mur ouest.

Quatre autres jarres furent également découvertes, l'une dans ce même caveau nord-ouest, mais à un niveau supérieur, la seconde prise dans la maçonnerie de l'extrémité nord du mur ouest¹ (fig. 5 et 11), les troisième et quatrième à l'extérieur du mausolée, mais celles-là étaient anépigraphes.

1. La jarre a été insérée dans cette maçonnerie au moment même où on montait celle-ci. Il est donc probable que les ossements des deux squelettes qu'elle contenait proviennent des sarcophages sud-est (n° 2) et sud-ouest (n° 3) du mausolée, les seuls à avoir été construits durant l'état III. On les aurait nettoyés lors de la réfection IV à pour les réutiliser.



FIG. 11. — Mausolée : jarre funéraire dans la maçonnerie du mur ouest état IV a. A gauche, le mur nord de l'état III, tranché.

Je n'entrerai pas dans le détail fort complexe de la chronologie des tombes et des différents états architecturaux. Je me bornerai à dire que la construction du mausolée remonte sans doute à la première moitié du III^e siècle av. J.-C. et que les jarres inscrites du caveau nord-ouest sont probablement de la même date, leurs ossements provenant vraisemblablement de tombes qui furent détruites pour permettre l'édification du mausolée.

L'intérêt architectural du monument compense largement la modestie de son matériel funéraire. Ce type d'édifice funéraire en partie souterrain, que sa faible élévation au-dessus du sol et son toit plat devaient faire ressembler à un blockhaus, se retrouve dans la nécropole parthe d'Assur. Il existe en effet sur ce site toute une série de mausolées carrés en briques cuites, compartimentés intégralement en caveaux voûtés¹ et qui, à la différence des tours de

1. W. Andrae et H. Lenzen, *Die Partherstadt Assur*, p. 98-101, pl. 51-53, 54a.

Hatra et de Palmyre¹ auxquelles on a pris la mauvaise habitude de les comparer, ne comportent pas d'étage. Deux d'entre eux s'enfoncent, comme le nôtre, dans le sol. Le plan avec couloir central et chambres latérales est également utilisé dans ces édifices d'Hatra. Ni le monde grec méditerranéen ni l'Asie Centrale² ne fournissent de parallèles convaincants, susceptibles d'éclairer l'origine du mausolée bactrien, qui se place en tête de la série et précède de trois siècles environ les édifices d'Assur. L'hypothèse la plus vraisemblable est d'attribuer aux colons grecs de l'empire séleucide l'invention de ce type d'architecture funéraire. Familiarisés depuis le IV^e siècle avec la construction de voûtes en pierre, notamment dans la Grèce du Nord où elles abondent dans les caveaux des tumuli, les architectes grecs durent assimiler sans peine la technique parallèle des voûtes en briques crues que l'Orient utilisait depuis longtemps. Les voûtes du mausolée d'Aï Khanoum restent d'ailleurs fidèles à cette tradition orientale ancienne, qui ne connaît de voûtes que souterraines ou demi-souterraines, contrebutées par les terrains environnants, ou en couverture de baies prises dans la maçonnerie d'un mur. Il n'y a donc dans les caveaux d'Aï Khanoum aucune innovation architecturale. C'est aux constructeurs parthes que reviendra le mérite d'arracher les voûtes au sous-sol pour les projeter dans le plein ciel des iwans.

Ce n'est pas dans les tombes, mais aux abords du mausolée, qu'ont été faites les trouvailles les plus importantes, à savoir des fragments de deux inscriptions grecques et un relief.

Les inscriptions sont toutes deux trop mutilées pour donner un sens, mais leur caractère funéraire est assuré par le mot *μνημεῖον*. La première est une stèle, dont les quelques fragments conservés montrent qu'elle devait être de grandes dimensions. On y lit, quoique mutilé, le mot *β[α]σιλ[ε]ὺσι* et nous n'en sommes que plus marris de ne point savoir quels sont ces rois et quel est le rapport entre eux et le défunt, sans nul doute un haut dignitaire de l'administration royale. L'écriture, fortement influencée par la cursive des manuscrits (*epsilon* et *sigma* lunaires, *oméga* en double boucle), ne se laisse pas dater avec précision, mais il est probable qu'elle est postérieure à la régence d'Antiochos dans les satrapies supérieures, ce qui interdirait d'identifier les « rois » mentionnés par l'inscription avec Séleucus I^r et son fils.

La seconde inscription était métrique et comportait quatre vers gravés sur un cippe rectangulaire dont nous n'avons que la partie

1. W. Andrae, *Hatra*, II, 1912, p. 75-106. Pour Palmyre et les tours funéraires en général, cf. È. Will, *Syria*, 26, 1949, p. 87-116 et 258-313.

2. Ni les tombes parthes de la vieille Nisa ni même le mausolée chozemien de Babiš Mulla ne sont construits dans le même esprit.

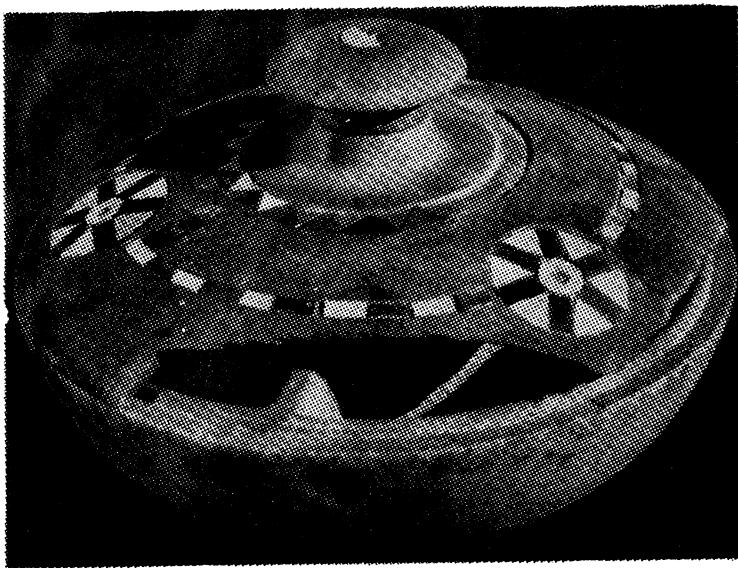


FIG. 12. Mausolée : pyxis en schiste décorée d'incrustations de pierres colorées.

haute, elle-même fort endommagée. Ce texte, dans l'état où il est, demeure tout aussi énigmatique que le premier.

Vingt-neuf fragments d'un relief, taillé dans l'habituel calcaire blanchâtre et volontairement saccagé, furent trouvés devant la porte d'entrée du mausolée. Ils recomposent l'essentiel d'une plaque haute de 57 centimètres, sur laquelle se détache en haut relief l'image d'un jeune homme nu de face, bien hanché sur la jambe gauche d'appui (fig. 13). Il a pour tout vêtement une longue chlamyde agrafée sur l'épaule droite, dont le pan antérieur rejeté dans le dos par-dessus l'épaule gauche revient sur l'avant-bras gauche horizontal et retombe à l'extérieur. Au-dessus de l'épaule gauche émerge un couvre-chef en galette, sans doute un pétase. Les traits du visage ont sauté à l'exception de la tempe et de l'œil droits. La longue chevelure flottante tombe en nappe sur les épaules. La disparition des mains et des objets qu'elles devaient tenir nous prive du moyen le plus sûr d'identifier le personnage. La longue chevelure féminine et la chlamyde pourraient faire penser à un Apollon tenant l'arc et les flèches, comme celui qui figure sur le monnayage gréco-bactrien et indo-grec¹, mais le chapeau n'est

1. R. Curiel et G. Fussman, *Le Trésor de Qunduz* (*Mémoires D.A.F.A.*, XX; 1965), pl. XXI-XXXII (Eucratide); A. N. Lahiri, *Corpus of Indo-Greek Coins*, 1965, pl. VII, 11, 14; VIII, 1-5 (Apollodote II).



FIG. 13. — Mausolée : bas-relief représentant un éphébe.

guère compatible avec un type apollinien. Du reste le lieu de trouvaille oriente tout naturellement vers l'idée d'un relief funéraire qui représenterait un jeune Grec mort dans la fleur de l'âge. La chlamyde et le pétase le caractériseraient comme éphèbe, mais dans cette hypothèse les longs cheveux posent un problème. On sait en effet que les éphèbes sacrifiaient leur chevelure de garçon dans la cérémonie d'initiation à la vie militaire¹. S'agirait-il alors de la mode orientale des cheveux longs que certains Grecs se seraient plu à adopter, au moins dans leur jeune âge ? Nous avouons notre embarras sur ce point.

Par son style l'œuvre se rattache à la meilleure tradition grecque. Malgré la robustesse des formes, l'allongement des jambes et la relative petitesse de la tête gardent au corps des proportions élancées. Les masses musculaires puissantes sont amorties sous un modelé enveloppé. Malgré de graves mutilations on devine, à l'œil enfoncé sous l'arcade sourcilière tombante, au regard souffrant levé vers le ciel, l'expression pathétique du visage. Nous sommes en présence d'un art qui a connu et assimilé les leçons de Pergame.

II. Sanctuaire du temple à redans.

Je serai bref sur ce second chantier², où le dégagement des constructions qui ceinturent la cour, quoique commencé depuis deux ans, n'est pas encore assez poussé, ni l'interprétation des résultats assez sûre pour donner lieu à un exposé cohérent.

Notre premier objectif était de trouver la limite nord du sanctuaire. Nous l'avons cherchée en vain parmi les habitations tardives qui avaient envahi la cour. Nous avons fait en revanche l'heureuse découverte d'une petite chapelle orientée vers le Sud et tournée vers la cour dont l'intérêt réside avant tout dans le plan analogue à celui du premier hérôdon de Kinéas³ (fig. 14) : celle précédée d'un pronaos barlong plus large qu'elle avec deux bases de colonnes en pierre in antis. Contre le mur de fond se dresse un socle en briques crues. Ce naïskos réoccupé par les squatters de la période tardive est largement postérieur à la construction du temple.

Dans cette zone nord la fouille de l'habitat tardif a donné lieu à quelques découvertes, parmi lesquelles on mentionnera l'attirail d'un atelier de parfumeur avec tout un assortiment de godets à

1. Chr. Pelekidis, *Histoire de l'éphébie attique des origines à 31 av. J.-C.*, 1962, p. 63-64.

2. Ce chantier a été dirigé par M^{les} E. Bennigsen et I. Sortais, H. P. Francfort et S. Veuve.

3. Cf. provisoirement *Proceedings of the British Academy*, LIII, 1968, p. 81, fig. 4. Une publication détaillée de ce monument est donnée dans l'ouvrage à l'impression *Ai Khanoum I: Campagnes 1965-1968*.

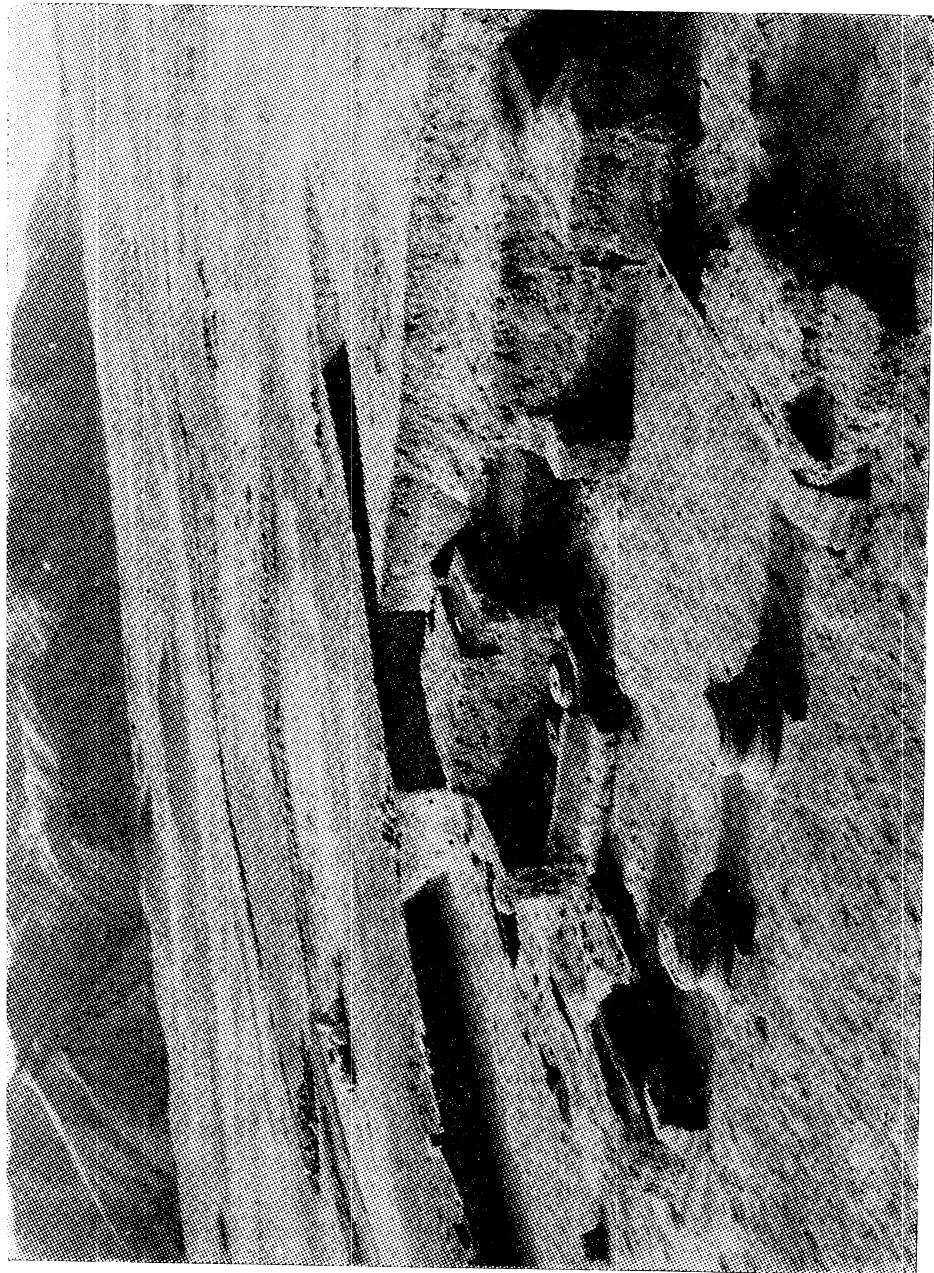


FIG. 14. — Sanctuaire du temple à redans : pronaos de la chapelle nord.



FIG. 15. — Sanctuaire du temple à redans :
statuette de femme.



FIG. 16. — Sanctuaire du temple
à redans.

cosmétiques s'emboîtant les uns dans les autres, une échoppe de tailleur de pierres semi-précieuses approvisionnée en matériaux de récupération et une statuette en calcaire franchement barbare représentant une femme emmitouflée dans une capuche-passe-montagne et dans une sorte de longue houppelande qui dissimule complètement les pieds (fig. 16). Non loin d'elle gisait une autre statuette en calcaire, malheureusement aéphale, épave de la colonisation grecque. Elle représente une femme debout contre un pilier à chapiteau ionique (fig. 15). Le type général, les proportions extraordinairement élancées, le chiton ceinturé haut sous les seins et bordé d'un galon à l'encolure, le drapé du manteau passant en tablier devant les jambes et retenu par une main sur la hanche gauche, tout cela est pleinement hellénistique. Mais dans cette œuvre, malgré les apparences, la tradition grecque est réduite à

un répertoire de formules et de procédés appliqués mécaniquement sans être compris. Le pilier est devenu un élément adventice qui ne joue aucun rôle dans l'équilibre du personnage, alors qu'il est visiblement fait pour soutenir le coude gauche qui en fait reste en l'air. Le traitement du drapé est sec, schématique, sans véritable sens plastique. Pourtant, en dépit du provincialisme de son style et de la médiocrité de son exécution, la statuette appartient encore au patrimoine grec non seulement par son type mais par la façon dont les volumes tournent dans l'espace.

La deuxième tâche que nous nous étions fixée sur ce chantier était le dégagement des états profonds de la zone est du sanctuaire en bordure de la grande rue nord-sud de la cité. En faisant cette fouille nous avons pu constater une nouvelle fois l'inextinguible fièvre de construction qui ne cessa d'agiter les colons grecs d'Aï Khanoum pendant les deux siècles que dura leur ville. Dans l'enchevêtement des états successifs et des réfections l'édifice le mieux délimité et le plus remarquable par ses dimensions est un grand portique long de 28 mètres environ, dont dix bases de la colonnade sont encore en place : celles-ci sont de simples plinthes en briques cuites, sur lesquelles posaient directement des colonnes de bois (fig. 17).

III. Quartier administratif.

J.-Cl. Liger et J. Rougetet ont complètement dégagé le portique sud-ouest de la grande cour des débris de la colonnade que, dans un premier temps de la fouille, nous nous étions contentés de mettre au jour. Le classement et l'étude des fragments ont été commencés.

IV. Restauration.

R. Audouin a achevé la restauration des chapiteaux corinthiens du vestibule hypostyle et amorcé celle des chapiteaux de pilastre des pièces 6 et 9 du quartier administratif.

V. Céramique.

En l'absence de M. J.-Cl. Gardin, M^{me} D. Liger a continué l'étude des céramiques recueillies dans le sanctuaire du temple à redans. Parmi ces dernières, nous mentionnerons un bol hémisphérique à engobe rougeâtre et à décor polygonal incisé, imitation locale d'un type hellénistique rare qui n'est connu dans le monde grec méditerranéen que par quatre exemplaires complets (Heidelberg, Tarse, Myrina) et quelques fragments (Delphes, Pergame, Athènes)¹.

1. Bibliographie dans J. Schäfer, *Hellenistische Keramik aus Pergamon*, p. 117.

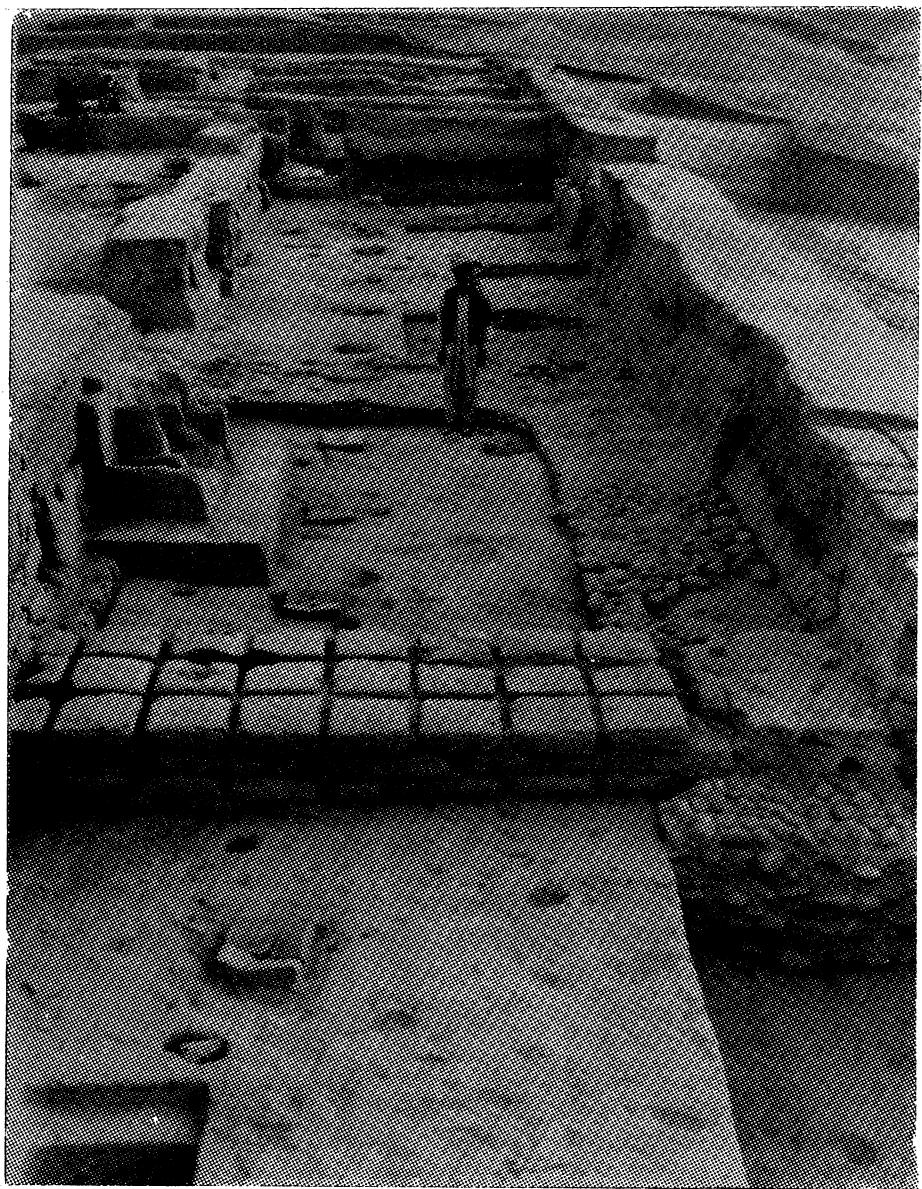


FIG. 17. — Sanctuaire du temple à redans : portique à plinthes de briques cuites.

VI. *Monnaies.*

Sur les vingt monnaies recueillies dix-sept étaient lisibles. Toutes sont des bronzes à l'exception d'une seule, une monnaie d'argent à poinçons multiples de Taxila. Comme toujours, le monnayage d'Euthydème l'emporte de loin sur tous les autres, suivi de près par celui d'Antiochos Ier, où apparaît un type inédit, peut-être local. L'importance de ces deux rois dans l'histoire d'Aï Khanoum et de la Bactriane est clairement mise en lumière par la prédominance de leurs frappes monétaires. La présence de deux indo-grecques d'Eucratide vaut également d'être notée.

Antiochos I^{er} : quatre bronzes avec tête d'Héraclès à la léonté au droit et un bœuf à bosse passant à droite au revers : type inédit ; un bronze avec au revers une Niké couronnant un trophée (atelier de Séleucie du Tigre) : E. T. Newell, pl. XIV, 3 ; XV, 3, 4, 5, 6, 7, 10, 11.

Diodote : un bronze avec tête de Zeus laurée au droit et Artémis à la torche au revers : *BMC*, p. 3, n° 7, pl. I, 9 (mais sans le chien).

Euthydème I^{er} : sept bronzes avec tête d'Héraclès au droit et cheval galopant au revers : A. D. H. Bivar, *Num. Chron.*, 1951, p. 36-37, n°s 26-29.

Eucratide I^{er} : deux indo-grecques avec au droit tête casquée du roi et légende en grec et au revers Dioscures au galop et légende en Kharoshhti : A. N. Lahiri, *Corpus of Indo-Greek Coins*, p. 128-129, n° 20, pl. XVII, 8.

Bronze koushan de Vasudeva avec au droit le roi sacrifiant à l'autel et au revers Siva et le taureau : *BMC*, pl. XXIX, 14. Cette pièce a été trouvée près de la surface.

VII. *Ostracon en écriture araméenne.*

Les professeurs V. A. Livshitz et I. M. Diakonoff ont bien voulu me faire connaître leur déchiffrement de l'ostracon en écriture araméenne trouvé en 1970 dans le sanctuaire du temple à redans. De leur étude, qui paraîtra ultérieurement, je dégage ici les conclusions principales. Le texte, rédigé en écriture araméenne et contenant un certain nombre de noms propres iraniens, peut se lire soit comme de l'araméen soit comme de l'iranien moyen. L'absence de tout trait syntaxique et de toute flexion ne permet pas de trancher cette ambivalence linguistique, mais les considérations historiques donnent la faveur à la seconde hypothèse. Il est probable en effet que cet ostracon, postérieur à l'occupation achéménide, doit représenter non plus la langue araméenne de la chancellerie.

achéménide, mais une langue iranienne locale notée à l'aide de l'alphabet araméen et que l'on peut appeler du « bactrien ».

Le texte central est un document économique faisant état de certains paiements. Ce genre de document est bien connu par les archives de Nisa, par l'ostracon de Shar-i-Qumis¹ et par les ostraca inédits de l'ancienne Merv.

1. A. D. H. Bivar, *JRAS*, 1970, p. 63-70.

Share Ghulghula (the City of Screems) of Tar-o-Sar

By Ghulam Rahman Amiri

Ghulam Rahman Amiri took part in a brief archeological survey of Shahre Ghulghulah of Tar-o-Sar and has written this report. It includes an outline of the history of the site, and a description of its present condition.

Tar-o-Sar is a Baluchi compound word: a "tar" is an uncultivated, wide, plain-desert, and a "sar" is a large castle or village. Therefore "Tar-o-Sar" gives the purpor! of a large castle existing in a lifeless wilderness. Perhaps this region was given the name Tar-o-Sar by Baluchi speaking peoples at the beginning of the 18th century, after previous inhabitants had left the area (1).

Mr. Mohammad Azam Siestani has written about this site under the title "Sar-Tar, or the Unique Fortification", as follows:

"Sar-o-Tar in simple form, close to certainty could be Sar-Tar. Presumably it was the Unique Fortification which later on, especially after the ruinous attack of Amir Timur in that area, metamorphosed as Sar-Tar in the public pronunciation and remained as the later form until today (2).

In his essay regarding the "Unique Fortification" he has quoted the writings of some Islamic historians and geographers where their views are contrary to each other. For example, on page 41 of this publication, the Unique Fortification is mentioned as a small city according to Jayhani, a Sasanid minister, and Mr. Mohammad Azam Siestani presented it as Zarange. On page 43 of the same publication, the Unique Fortification is described according to Mr. Moianulddin as one of the largest cities of Sajistan (the old name for Siestan). The latter geographer has written that the Unique Fortification



consisted of three ramparts, the third of which contained a jail. When prisoners were sentenced to death, they were kept in this jail until they died. He has pointed out that there were many skeletons and human bones; at the writing of this paper, 4000 human skulls had been counted. On page 44, it is mentioned that seven ramparts instead of three existed in the Unique Fortification according to Mr. Atbi (3). On page 45, according to Abdul Feda, a historian and geographer of the 8th century, the location of the Unique Fortification is listed as being on top of a high mountain near the Helmand River, where initially the course of the river was altered.

Although some parts of the present Shahre Ghulghulah (City of Screams) of Tar-o-Sar conform with the views of Moianuddin Asfazari, as the present site is very large and wide and has three walls, on the basis of contradictory writings of Islamic historians and geographers as Mr. Azam Siestani has mentioned them, we cannot be certain that the present Shahre Ghulghulah of Tar-o-Sar is the above mentioned Unique Fortification. In Sistan there are numerous ruins, large and small; perhaps the historians and geographers are referring to some other castle in the area, as Mr. Azam Siestani himself called the Unique Fortification of Jayhani "Zarange".

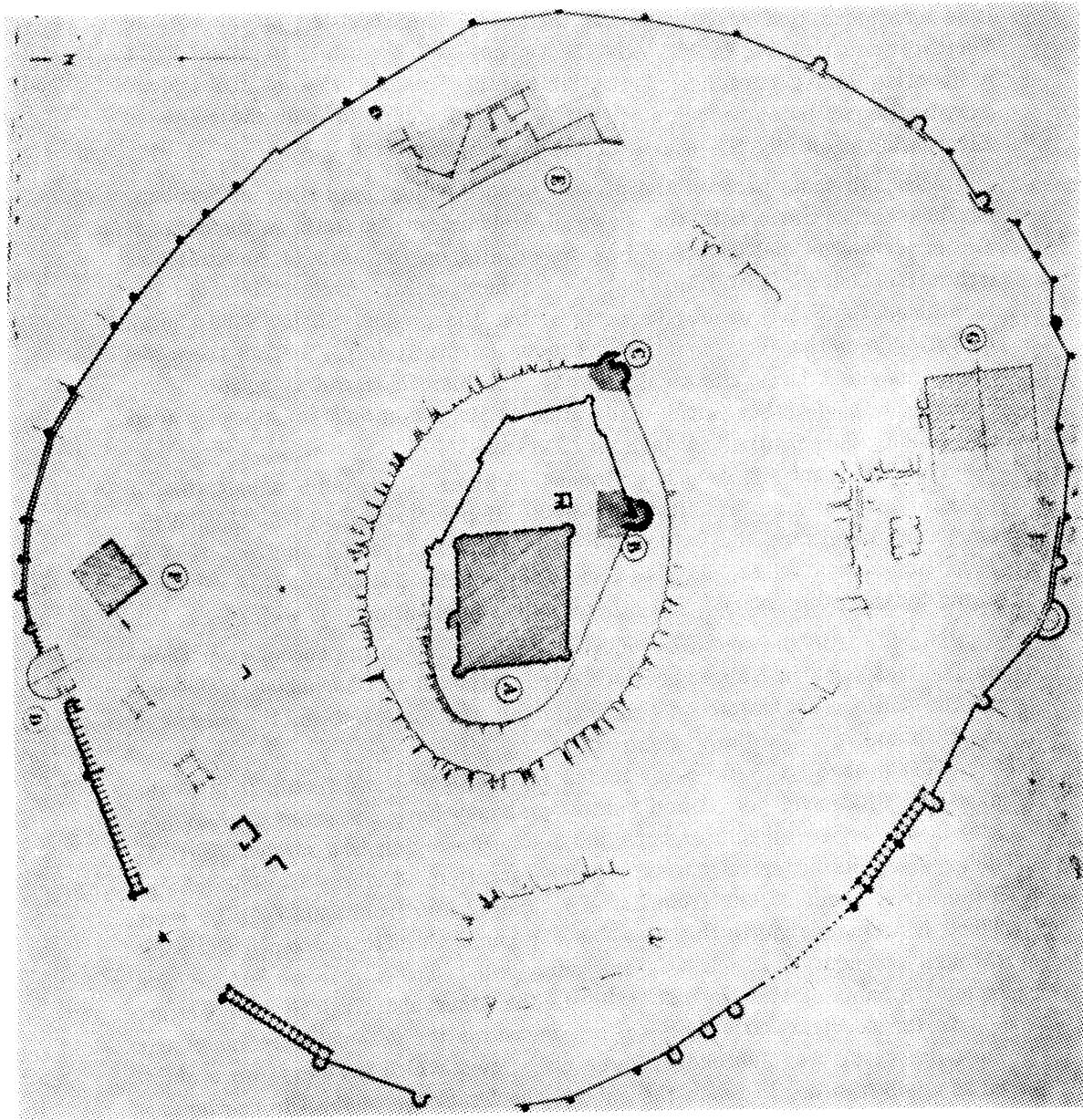
This historical site, which is famous as Share Ghulghulah among the inhabitants of that area, was first cited by Sir Henry MacMahon who headed the delegation determining the border between Afghanistan and Iran from 1903 to 1905, but he named the area as Sar-o-Tar and not Tar-o-Sar. This region is noted by the same name in all other English publications, as well (4).

The site is in the southwest of Afghanistan, close to the border near Charburjak Woloswali in Nimroz province. It is adjacent to Charburjak Woloswali on the south, Chakhansur on the north, the Margo Desert on the east, and the Helmand River on the west.

Most probably the Tar-o-Sar region was cultivated and fertile land in the past (the Ghaznavid period and before) and may have possessed a great dignity in an earlier, magnificent era, but today the region is a sandy desert. As time passes, its historical parish is being forgotten. Shahre Ghulghulah of Tar-o-Sar is about 86 km. from Zarange, and 32 km. from Qala-Fath by road. There is no main road to this area, but one can with difficulty reach the point through secondary paths among the sandy hills. The site is very large, and from this point of view incomparable to the other historical sites in Sistan.

In the construction of this castle, measures for defense were important. Tar-o-Sar castle was guarded by three walls, over which invaders were obliged to climb in order to reach the palace. The landscape of the site can be described as below:

- a) There is a circular exterior wall surrounding an area of about one square kilometer. Traces of many ramparts can be seen along the wall and give the sense that broad defensive considerations were important when it was built.



2) Shahre Ghulghula : General Plan.

b) Within the above mentioned enclosed space, on the west side, a second circular wall can be observed to close off a smaller area. Along this wall, places of habitation can be seen. Unfortunately, most of these are now hidden by sands, and at present it is difficult to offer further explanation as to their shape.

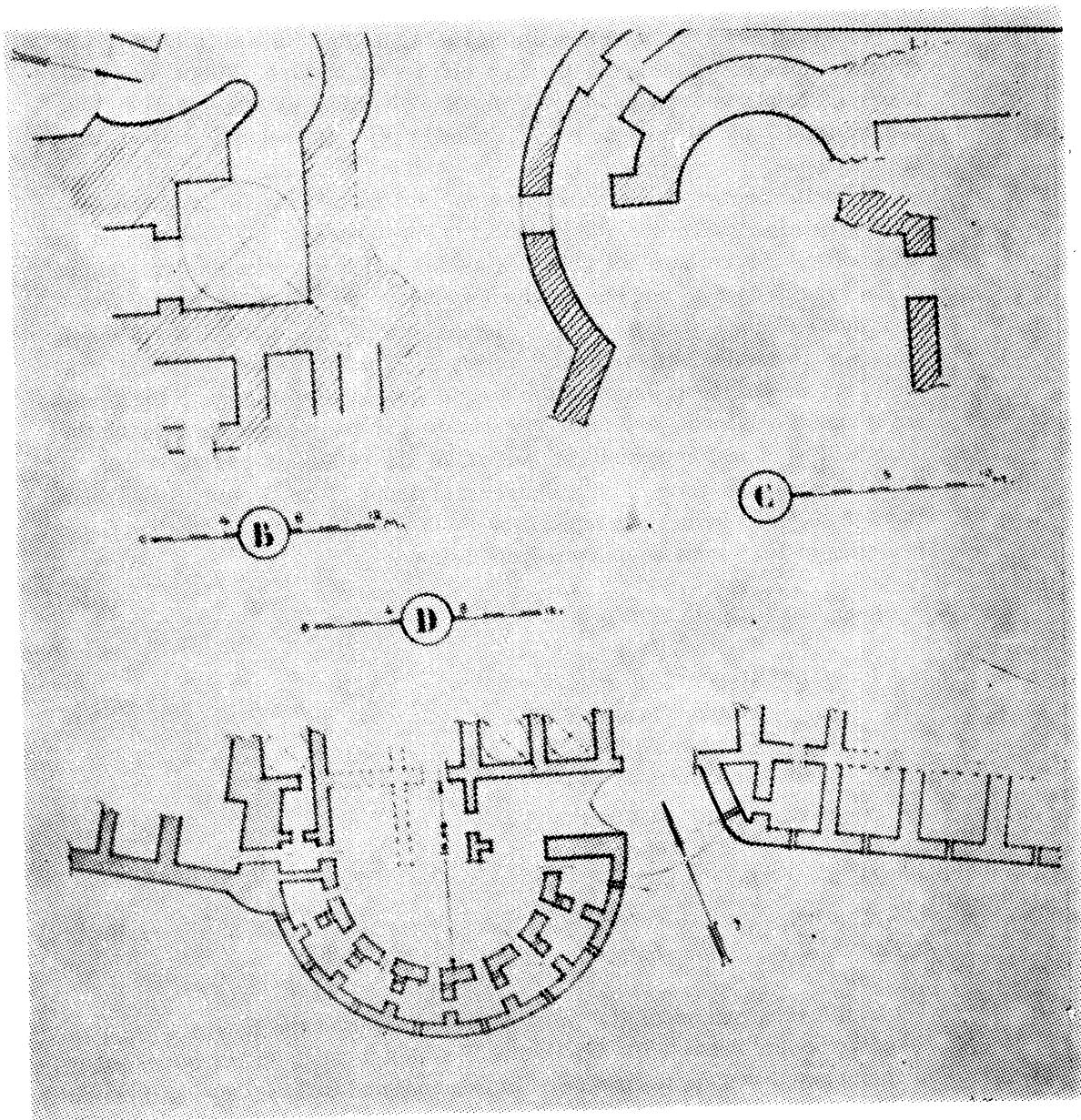
c) In the center of the second fenced yard there exists a large construction, appearing to be the Royal Palace. The palace is built on top of an artificial hill (5). Perhaps the palace originally had two stories, but the ceiling of the hypothesised second story, which seemed to be a dome because traces of a dome (*trompe*) can be seen in the corners of the rooms, has collapsed, and only the walls have remained in place. The first floor is almost complete, but due to the collapse of the second floor, the entrances to the rooms are completely blocked, and until an excavation is made, entrance through the doors will be almost impossible. A portion of the ceiling of one room has fallen in a circular form, with a diameter of about 70 cm. I entered the room through the hole by using a rope. The room was connected to another room. The sizes of the rooms as measured are below:

Room A:	Length 5.75 m
	Width 3.00 m
	Height 3.00 m
	Window Length 0.75 m
	Window Width 0.17 m
	Thickness of the Wall Along the Window 2.00 m
Room B:	Length 9.00 m
	Width 3.60 m
	Height 3.50 m

(The height measurements were taken from the surface of the earthfill, the depth of which may be about one meter)

In the construction of the walls, from the floor to the height of 1.50 m, baked bricks are used. The bricks are $33 \times 33 \times 9 \text{ cm}^3$. In the construction of the palace, baked bricks, sundried bricks, and mud (pukhsa) are used. Based on observations made at the site, it is supposed that the first fenced yard, where there is evidence of buildings and grave yards, belonged to the lower classes such as workers and peasants. The second fenced yard was the place of high ranking officials and powerful people of religious or economic importance. The third part, the palace, was the residence of the ruler of the community.

Outside the palace, in the second yard, the remains of a mosque can be seen. A small portion of the decoration of the mosque's Mihrab and the bases of six columns can be observed. The rest of the mosque is filled and hidden by sands.



3) Shahre Ghulghula : Different samples of arches.

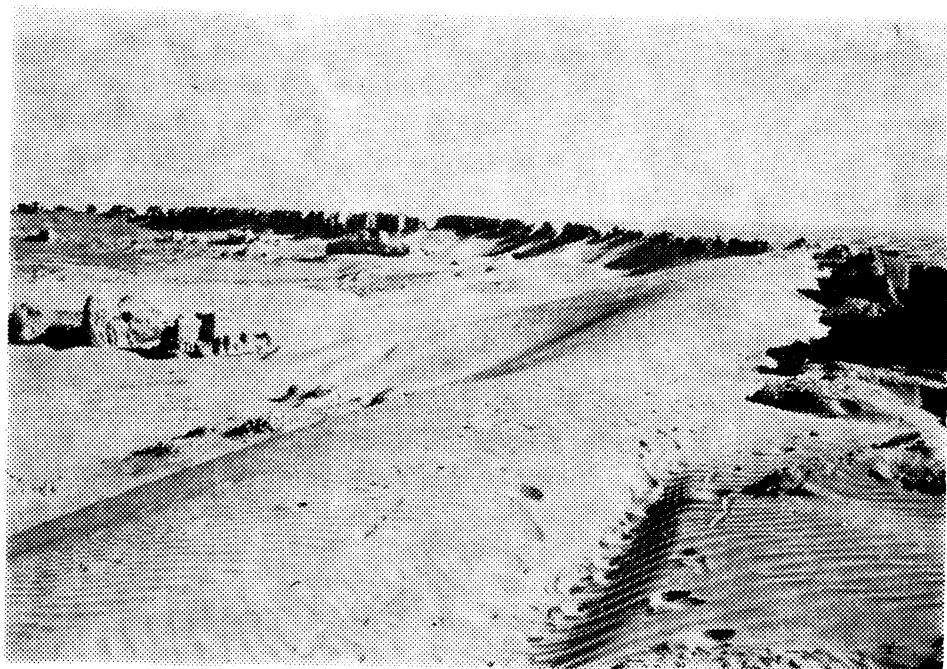
The main entrance of the first and second fenced yards have not been observed because most of the walls have been covered with sands and have yet to be excavated. On the basis of construction design and masonry, and from potsherds found on the site, it most probably is related to the Ghaznavid or Safavid periods. The Safavids had emerged in Sistan and controlled the area from 247 to 393 A.H. (6) and so also the great Sultan Mahmud Ghaznawi had conquered Sistan (in 393) and annexed this area (7). It should be mentioned also that in the construction of Shahre Ghulghulah the masonry style of the Sasanid period was adopted in large scale. Having in view the fact that the walls are built completely in the Islamic style, the plan and shape of the Tar-o-Sar site are similar to the design of the palace of Ardisher I in Feroz-Abad (8).

Pieces of pottery showing decoration of an Islamic nature, and ribbed pottery, are found in great numbers. Pieces of potsherd related to the Timurid period are also found in this place, and on this account we can say that perhaps this region had once been the passage way of the greatness of the Timurids, too.

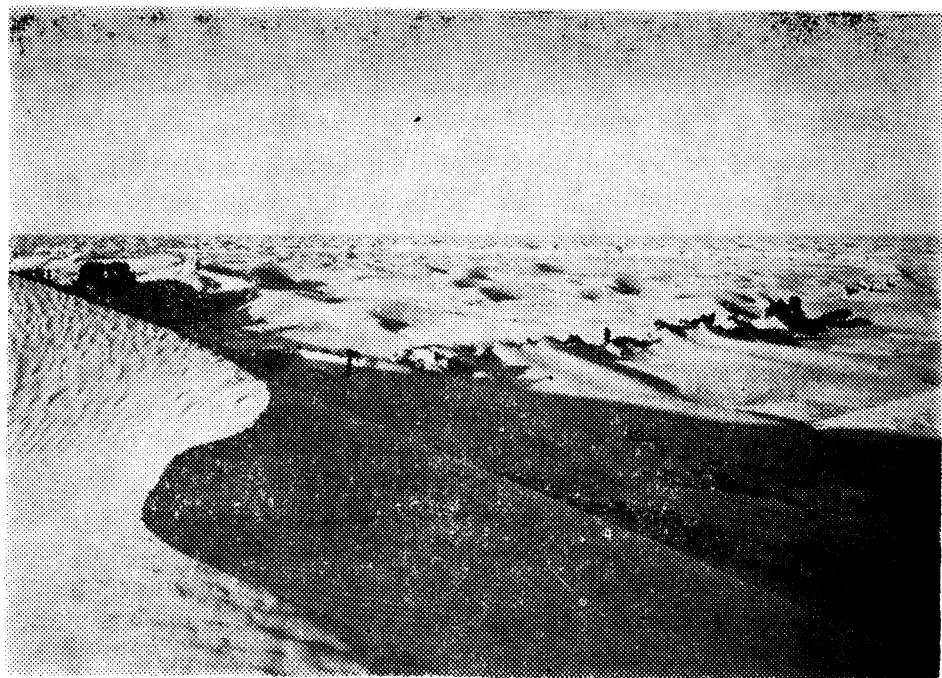
More historical ruins can be seen outside of the Tar-o-Sar castle. Since much of these ruins is hidden by sand, it is difficult to find the connections among them. They do, however, continue to Chakhansur and are divided into the following three groups:

- Hills which were formed by the destruction of ancient buildings.
- The fenced walls of the castle, which are ruins.
- The younger buildings, which are more complete than the first and second categories of ruins, and can be studied more easily.

Numerous cemeteries are visible inside and outside the first fenced area. The graveyards can certainly be dated to an Islamic era, as the heads of the graves are toward to north, the feet toward the south, and the faces inclined slightly to the west side. A number of graves hold the skeletons of two or three persons. The wind erosion is very strong in this area, and many of the graves are demolished, leaving human skeletons visible. There are so many cemeteries in this area that, due to the severe winds, human skeletons are scattered all over. By the observation of the numerous graveyards and tombs containing the skeletons of two or three persons, it can be supposed that this city once had been invaded and that severe fighting had occurred which killed many people. If we review the history of Sistan, after the beginning of the Islamic period, the destruction of Timur-Lang first requires attention (9). The conquest of this area by Amir Timur and his successors is not improbable. If we accept such a theory, obviously we come to this point: that the foundation of Shahre Ghulghulah of Tar-o-Sar is laid in the Safavid or Ghaznavid period, and after the invasion of Timur-Lang, Sistan was occupied by the Timurids. There can be seen pieces of potsherd related to the Timurid period in great numbers.



4) Ruins inside the first yard and a part of the first enclosure wall.



5) First enclosure wall, a part of the second wall, and the castle.

Why and when the Timurids left this area is still not known, but if we study the present climatical condition of Afghan Siestan, it looks as if natural factors had made life very difficult for the people in this area, and as a result they left the place.

In my opinion, the changes caused by natural factors would be one of the two following types:

a) Destruction caused by the river. Perhaps the Helmand River sank below the level of the adjacent lands. As a result, the water stopped flowing into the canals and the irrigation system was destroyed. Hence the people were forced to leave the area. Of course, the process of this action depends on the nature of the river bed and the current of the water. As the water flows faster and the soil is softer, the river destruction takes place more quickly.

b) Demolition by wind and sands. Destruction by winds and sands has been very severe in the province of Nimroz. The wind blows generally from one direction, that is northwest, and sometimes its velocity reaches 200 kph. The basic direction of the wind is such that first it would destroy the northern and then the southern wall of a yard, and the east and west walls would remain standing longer (10).

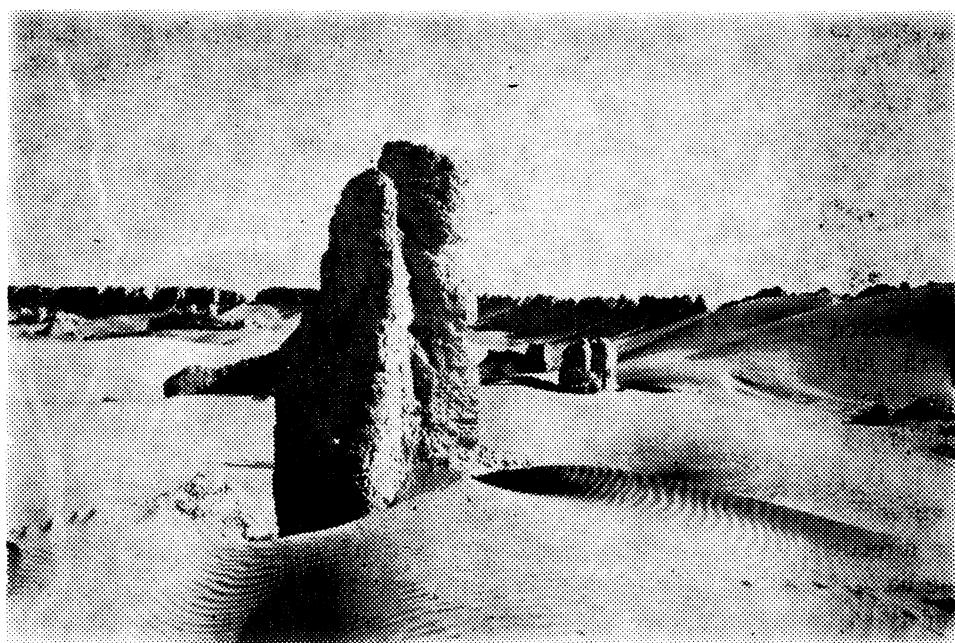
The wind, which is known by the name of the "120 days wind" in most of this area, shifts thousands of sand hills from place to place. Indeed, if Siestan did not have its "120 days wind", its summers would be unbearably hot.

Ibn Hauqai has written in this regard, "The land of Siestan is salty and sandy. The weather is very warm and dates are grown there, no snow falls. It is a wide plain with no mountains, there blows a strong continuous wind, which is why the people of Siestan constructed windmills for the grinding of wheat. As the wind shifts the sand from one place to another, the people of Siestan protect their land from the destruction of the wind on the basis of past experience and knowledge of geometry from their parents; if such precautions were not taken, the sands would destroy the cities and the villages". (11).

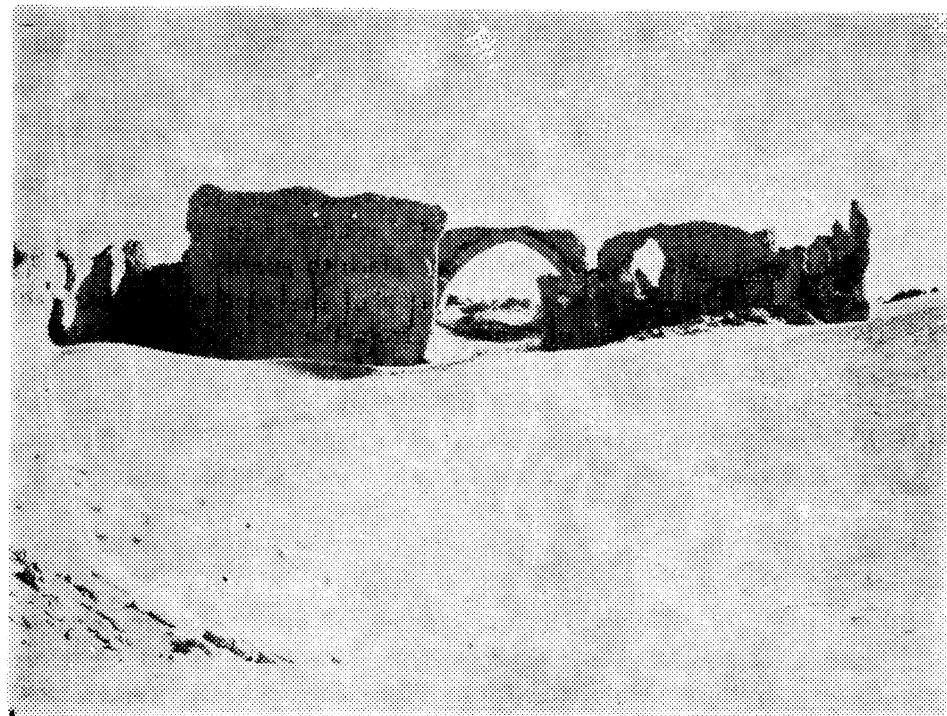
If the irrigation system were affected by the demolition of wind and sand, it could be closed very quickly. Perhaps life in Tar-o-Sar was quelled by the above mentioned factors.

In any case, further explanation regarding the historical site will require more historical research, which hopefully will begin in the near future.

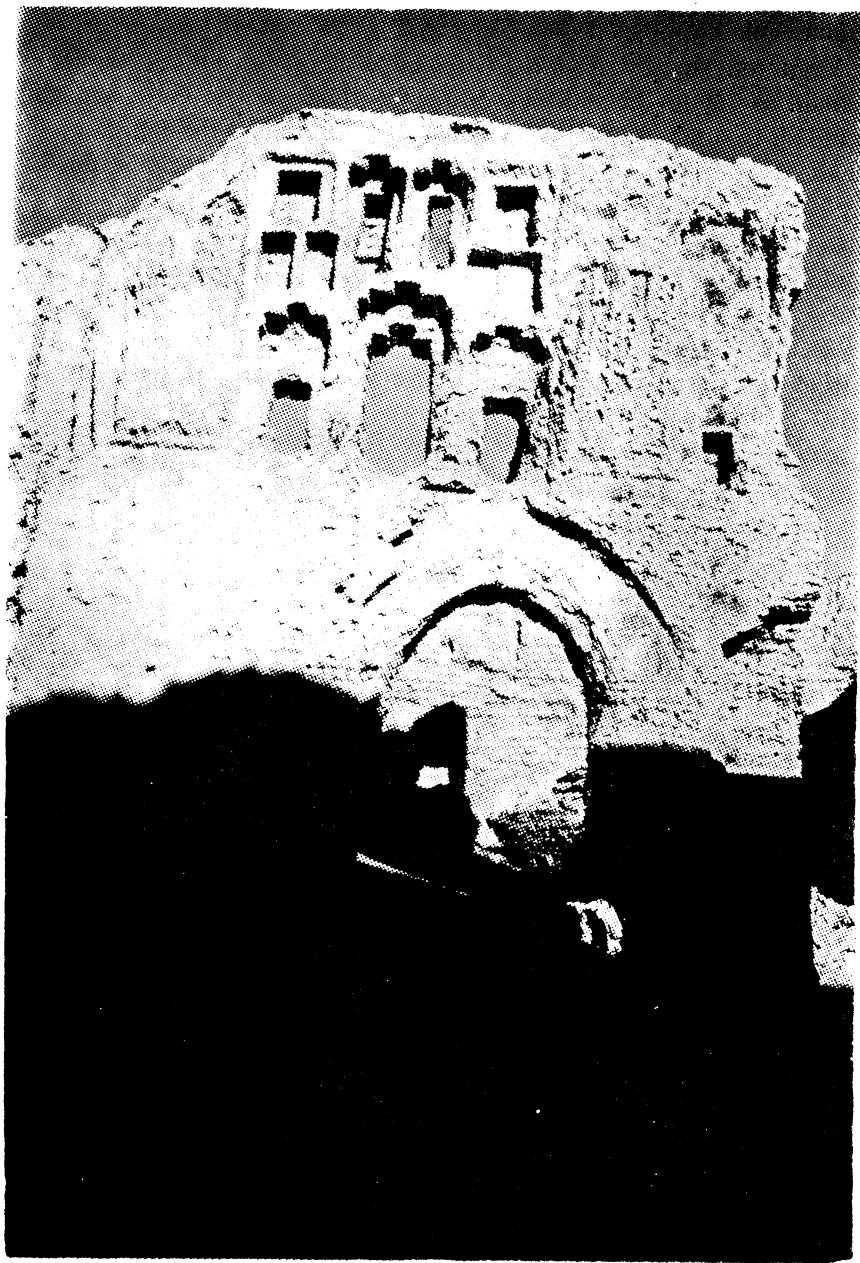
NOTE: On 12/8/1350, when I was accompanied by an American archeological team, a part of Afghan Siestan was surveyed from an archeological point of view. In the course of this survey, Tar-o-Sar as a historical site was also surveyed in brief. During the three day expedition I obtained the information and knowledge as presented in the report.



7) Ruin within the first yard and part of the first enclosure wall.



8) General entrance of the castle.



9) Shahre Ghulghula , masonry decoration.

FOOTNOTES

- 1) The inhabitants of Tarakhoon, Shiwal, Kadeh, Kang, and Peshawaran interpret the word "Tar-o-Sar" in the above mentioned meaning.
 - 2) Aryana; Vol. XXV, No. 1, Jan.-Feb. 1967, p. 40.
 - 3) As I entered into two rooms of the building, I did not see the signs of human skeletons. In addition, inside the third yard a large and glorious building is situated which is certainly the palace and the jail.
 - 4) Hackin, J.; Recherches Archeologiques Dans la Partie Afghane du Sistan In Men, D.A.F.A., VIII, Paris, 1959, p. 15.
 - 5) Hackin, J.; op. Cit., p. 26
 - 6) Habibi, Pohand; Short History of Afghanistan, I 346, p. 118.
 - 7) Khalili, Ustad; Ghaznavid Monarchy, I 333, p. 38
 - 8) Hackin, J.; op. cit., p. 26.
 - 9) Kohzad, Ahmad Ali, and Sadqi, Mohammad Usman; Afghanistan; Vol. I, p. 17
 - 10) Hackin, J.; op. cit., p. 28.
 - 11) Aryana; Vol. XXVI, No. 3, 1968, p. 18.
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Al-Beruni and the Decline of Science and Technology in Medieval Islam, and his Contributions to Geography, with Special Reference to India

by Prof. S. Maqbul Ahmad

Director, Centre for West Asian Studies,

Prof. Ahmad's paper was presented to the seminar on the Millennium of the Birth of Al-Beruni, held in Kabul, 1973. The paper deals with Al-Beruni work as a geographer and the field of geography as one of the few progressive fields of study in the time of Medieval Islam. The author includes a discussion of the reasons for the decline of secular science and philosophy in the Islamic world after the 11th century.

It is well known that science and technology in the time of Medieval Islam passes through various phases of growth and progress from the eighth to the twelfth centuries A.D., but that in the later centuries, the progress was minor compared to that of the earlier stages. In fact, there was a continuous decline through the nineteenth century; in modern times, the study of the sciences has been taken up as a result of the impact of the west and a renaissance in the Islamic world. During this later period while some sciences

like geography, navigation, mechanics, and engineering continued to show some progress, others, like astronomy, mathematics, physics, chemistry, logic, philosophy, medicine, optics, and ophthalmology, became outdated and ceased to progress. The works of the great masters of the earlier periods continued to be taught in the traditional manner, but little new research or investigation was done by the teachers or the taught. The texts of the masters were taught as bibles, or at most, commentaries were written that did little to expand the subject. Sciences that did show some progress, like geography, navigation, mechanics, and engineering, were those that interested kings and rulers for their military and political value. I believe that, among other factors, the decline of science and technology in the latter period was one of the main causes responsible for the decline of the Islamic society. The period between the eighth and twelfth centuries was truly the age of renaissance for Islamic society; Greek, Indian Roman, and Byzantine scientific, philosophical, and cultural achievements contributed as much towards this flourishing as the genius of the various nationalities and races who formed the component parts of what is called Islamic society. The totality of knowledge possessed and advanced by the scientists and philosophers of medieval Islam, in turn, played an important role in preparing the intellectual and philosophical background for the intellectual awakening in Europe, long before that awakening, the Renaissance occurred. The contribution came by way of transmitting Greek, Indian, and Iranian science and philosophy through Arabic translations, and by spreading an ethic of rational thought and a spirit of enquiry, and counter-acting, to some extent, the theological imprint affecting the European intelligentsia. Some western scholars have doubted that the Muslim philosophers and scientists made any worthwhile, original contributions in their fields of work. This remains a moot point, and much work remains to be done before it can be established that the original contributions of the Muslim philosophers and scientists exercised any influence on European thought. But in my mind, it is not far fetched that both the Reformation nad the Renaissance, as well as the Industrial Revolution in Europe, should be indebted to the to the intellectual achievements of the Islamic community during the period mentioned above.

As a student of historical geography, I can say with some authority that the contribution of the Muslim geographers to human geography, astronomical and mathematical geography, topography, cultural geography, and exploration and navigation cannot be challenged. The works of Al-Sharif al-Idrisi were taught in European univerisities right up to the seventeenth century. Al-Beruni's theory that there ought to be a channel connecting the Indian Ocean with the Atlantic, south of the Mountains of the Moon at the source of the Nile, was in contradiction to the Ptolemy concept of a TERRA INCOGNITE in the Southern Hemisphere which had led Muslim geographers to depict on their maps the Indian Ocean as a lake with only a single channel in the east con-

necting that body of water with the Atlantic Ocean. It was this concept of Al-Beruni's that finally led navigators to enter the Indian Ocean via the Cape of Good Hope. Again, Al-Beruni was not dogmatic about the geocentric theories of the ancients, and was aware of the other point of view, namely the heliocentric theory of the Greeks, and probably the ideas of those who propounded the heliocentric theory in India. As for his concept of the universe, he was familiar with the Hindu belief that the sky has no limits. But I do not believe that he conceived, like Einstein, that the universe—our solar system—was situated "on the outermost surface of a limited sphere, as was asserted by Seyed Hasan Barani, who was no doubt a great authority on Al-Beruni; like other philosophers of his time, he believed in shape and limited its margins". Barani's deduction from this sentence seems to be wrong. Einstein's universe is limitless and even he himself was unable to determine its final shape...At best, he described it as the pack-saddles of a horse. Al-Beruni's universe was limited to the solar system, whereas the modern concept is that the solar system is situated in an arm of our galaxy. If Al-Beruni had declared any such views, then the orthodox people of his time would probably have declared him a heretic. For the same reason, for fear of the orthodox Christians, Copernicus was unable to publish his theories during his lifetime.

Al-Beruni did, however, present the thesis that nothing precluded the existence of a land-mass between the eastern and western limits of the inhabited world, i.e. in the unknown parts of the Atlantic and Pacific Oceans. In fact, he saw the theoretical possibility of the existence of land there, and in this he was right, in that he had conceived of the possibility of the American continents, which no scientist of his age, before or after him had done. For even the discoverers of America were actually searching for a shorter passage to India by sea, and they gave the inhabitants of the Americans the name of "Red Indians" because they thought they had reached India when they came across some islands there.

Al-Beruni also measured the length of a terrestrial degree, devising his own method of calculation, and found the length of a degree to be a little more than 56 Arabian miles, which according to Barani's calculations falls short by about 12 miles in the radius and 70 miles in the circumference as compared to our modern scientists. This trigonometrical method, as suggested by al-Mamun's astronomer Sind ibn Ali, was resorted to by Al-Beruni at the fort of Nanda (western Punjab, India), while he was in detention there. This must have happened at the end of the year 408 A.H. or at the beginning of 409 A.H., soon after which we find him "wandering in a very sore state of mind in the neighbourhood of Kabul."

Al-Beruni also measured the area of the earth's surface and its volume, and its weight in gold. India is indebted to this great astronomer for his study of Indian geography, and for calculating the latitudes of a number of towns in northern India, and Afghanistan. His findings are app-

roximately correct. He gives a clear picture of the physical geography of northern India, as well as its climate, its flora and fauna, and its topography. His description of the road system emanating from Qinnauj is remarkable. He describes the main roads leading from Qinnauj to Kabul, Addishtan (Srinagar) Gangsagar (mouth of the Ganges), Orissa, Rameshwaram, Konkan, Tiz, and other coastal points, giving the distances in FARSAKHS. I have drawn a map of this road system (published in MEDIEVAL INDIAN MISCELLANY, Aligarh, University), but the source of his knowledge is unknown. It is probable that these roads existed in the Maurya and Gupta periods, and they are probably the roads that Suri and then the Mughals reconstructed. In describing these roads, he mentions a number of Indian towns and ports. The latitudes and longitudes of many of them are given in his AL-QANUN-I-MASUDI.

In the field of geography, we have, besides Al-Beruni, al-Maqdisi who laid the foundations of geography as a science. Al-Bayhani and Abu Zayd al-Balkhi, both of Afghanistan, and al-Istakhri and Ibn Hauqal were the forerunners of al-Maqdisi. This school of Balkhi geographers was the first to draw maps and present geographical information on a regional basis, which is a method still in use.

Besides geography, Muslim scientists of the early period between the eighth and twelfth centuries contributed original concepts and theories through experimental and theoretical work in various fields, surpassing the Greeks and the Indians. I am not competent to speak on these sciences authoritatively, but these conclusions can be drawn from the research of Orientalists. For instance, it was Ibn al-Haykham who first studied the structure of the eye, and discovered the properties of the lens. Thus, the construction of the telescope, which revolutionized astronomical science, though occurring in Italy centuries later, was based on his work, as is every sort of scientific equipment employing the lens. It was Ibn al-Nafis who, long before Harvey, discovered the circulation of the blood in the body. The Muslims surgeons of the period invented a number of surgical instruments, including a kind of syringe for drawing blood. Indeed, the names of Ibn Sina and Razi are outstanding in this field. Their works formed the text books for medical studies in Europe up to the 17th century (when they were given up because of the revolt of medical students against studying outdated Arabic texts, wanting to draw knowledge by dissecting the body directly). It was at this stage that TIB-E-YUNANI and allopathy branched out from the ancient Greek sciences. Likewise, in the field of chemistry, the Muslims were the first to separate matter from spirit, and raised AL-KIMIYA to the status of a pure science which the Greeks were not able to do. In mathematics, they made important original contributions in spherical trigonometry, algebra, and logarithms, which were invented by Mohammad Ibn Musa al-Khuwarizmi. In navigation, Ibn Majid and Sulayman al-Mahri were the outstanding navigators of the 15th and 16th centuries: their knowledge of the Indian Ocean was unsurpassed

at the time. They used the magnetic compass and indicated positions on earth by the positions of the stars. Ibn Majid is counted among the first of the modern navigators.

The question, however, arises in the mind of the historians of science as to why, if the Muslims were so advanced in science and technology, was there in the later centuries so little progress on their parts in these fields. George Sarton, in his INTRODUCTION TO THE HISTORY OF SCIENCE, pays tribute to al-Beruni by designating the first half of the 11th century as the era of Al-Beruni. This is like saying that Einstein was the greatest astronomer of the first half of 20th century. To my mind, the answer to this question lies in three important historical factors of his time. And it is my objective here to briefly mention them, so that the scholars who are gathered here may perhaps throw more light on them. For, I think that if the atmosphere had been favorable for the growth of science and technology in this period, the Islamic east might have witnessed a renaissance and industrial revolution the way Europe did. Now the first factor was of a theological and philosophical nature. Soon after the introduction of the Greek sciences and philosophy to schools newly Islamic, a section of the Muslim theologians attacked these studies, saying that the Greek philosophy went against the fundamental teachings of Islam, namely the Greeks believed that the world was eternal, while Islam taught that it was hadith that it had come into being in time. For centuries, the theologians and Muslim philosophers attacked each other over this and other philosophical questions. This is also reflected in the work of Al-Beruni who says that "the extremists among them would stamp the sciences as atheistic, and would claim that they lead the people astray in order to make ignoramuses, like him, hate the sciences." We know that al-Ghazzali warned the mathematicians and the logicians not to dabble in metaphysical questions, for, he said, they would never reach the truth through these sciences. But al-Beruni, who lived hardly a century before al-Ghazzali, believed the opposite. He says: "If a worshipper is a truth-seeker, then he is eventually led to an investigation of the conditions, old and new, of the world, and if he ignores that investigation he cannot pursue truth without reading intelligently about the rules of order in the universe and its parts, and without investigating the validity of those rules. This investigation will acquaint him with the Maker and His deserving qualities." Al-Ghazzali feverishly attacked the Muslim philosophers on their own grounds; Ibn Sina and others were his targets... By attacking the philosophers he indirectly attacked Greek science also, and finally provided the arguments against the philosopher-scientist for all the mutakhallimin of the later centuries. The philosopher-scientist's battle was a losing one from the 11th century onwards. Traditionalism and dogmatism in religious thought and philosophy were established which affected scientific studies and enquiries. Again, it was al-Ghazzali who provided the intellectual basis for the re-orientation of the educational system, by which theological studies were emphasized to a degree

greater than science or philosophy. This was initiated at the Nizamiyya College in Baghdad, and it is probable that the Seljuk princes had a political motive in it. They were aware that it would aid them in attacking the "heretic" kingdom of the Fatimids in Egypt. Thus a systematic study of theology with **ilm al-Kalam as the guide** became the popular form of education throughout the Islamic world. There was little patronage for science and technology, unless the ruler himself was interested in the subject for political or military reasons. This was perhaps the most important factor in the decline of Islamic science in the later middle ages.

The second important reason, to my mind, was that during the first hundred years or so of the Abbasid rule, the society was heading towards a capitalistic form of economy. With the rise of the Buwayhids, however, and the disintegration of the Mamlakat-al-Islam, a feudal economy gradually took hold of the Empire. In a feudal society, the rulers are hardly interested in industrial growth, for the economy is agrarian and trade and commerce are secondary. For the growth of the trade and commerce, patronage of science and technology is essential. We know that with the rise of the feudal kingdoms all over the Islamic world, overseas trade declined, whereas during the earlier period of the Abbasids, trade had flourished and the society was a mercantile one. It was during this period that many new industries, such as the glass industry, began in the Islamic world. In Islam, the rise of feudalism, though not of a European type, reversed the process of growth of science and philosophy. There were no doubt some enlightened rulers, like the Mughal emperor Akbar in India who tried to introduce secular sciences and some philosophy into the education, but could never fully succeed in his efforts. The attitude of almost all of the rulers with few exceptions, such as Ulugh Beg in Central Asia and Akbar in India, was feudal. They were hardly interested in trade and commerce, and hence indifferent to science.

Lastly, dogma and tradition, as I pointed out above, guided the thought processes of the whole society from the 11th to the 19th centuries. It was not only in education. It was also apparent in Islamic law. For it was precisely at this time that the four schools of Islamic law, the Hanafi, Shafii, Maleki, and Hanbali became fixed and the old liberal attitude towards EJTEHAD was given up. Throughout the later period, Islam never witnessed a religious reformation or revolution, which would have created a more liberal attitude towards the religion as the Reformation in Europe did. Thus, the attitude of the whole Muslim society was against the study of philosophy and science, for they believed that they spoiled the tenets of Islam.



ART IN AFGHANISTAN:

Benjamin Rowland and Frances Mortimer Rice:
OBJECTS FROM THE KABUL MUSEUM. (xi),
93 pp., 191 plates. London:
Allen Lane, the Penguin Press, 1971: £10.

This is perhaps the most ambitious and comprehensive of the several photographic albums published in recent years to make known, to an international readership, the noteworthy archaeological collections of the Kabul Museum. What was first attempted in such exhibition catalogues as (A) the Japanese AFUGANISTAN KODAI BIJITSU-TEN 'Exhibition of ancient art of Afghanistan', (Tokyo), 1963, (B) Professor Rowland's own ANCIENT ART FROM AFGHANISTAN, (New York), Asia Society, 1966, or (C) Jeannine Auboyer's THE ART OF AFGHANISTAN, London, 1968, is here presented in more definitive form. The principal groups of material are the following: the prehistoric finds of Mundigak; the museum's collections of ancient coins; the Indian ivories and the Roman glassware, bronzes, and plaster EMBLEMATA from Begram; the Buddhist clay images from Funduqistan; Islamic pottery and metalwork; and the wooden grave effigies of the nineteenth century or earlier from Nuristan. It is natural that several of the most celebrated pieces are included in all four collections, e.g. the pedestal cup with painted ibex from Mundigak, fig. 7 (=A, fig. 1; B, fig. 1; and C, fig. 2a); the ivory leogryph, fig. 20 (=A, fig. 53; B, fig. 40; C, fig. 20); the EMBLEMA of a sleeping mae-

nad, fig. 92 (=A, fig. 25; B, fig. 20; C, fig. 8), and of a helmeted youth, fig. 100 (=A, fig. 28; B, fig. 14; C, fig. 9a). The album under review has the special advantage that it illustrates the exquisite Begram ivories more copiously (48 reproductions), and on a larger scale, than any of its predecessors, and it is often planned so as to complement Rowland's earlier publication. The photography is generally excellent, but so far as the coin collections are concerned, it is doubtful whether any of these albums either achieves a selection wholly satisfying to the numismatist, or does justice, in terms of photographic quality, to recent technical advances in macro-photography. It is the present reviewer's impression that for subjects of this kind, daylight is a more satisfactory illuminant than tungsten. Miss Aubrey's portfolio illustrates the more varied selection of coins, but they are garishly lit, illogically arranged, and once or twice wrongly identified. Miss Rice's plates, though a little contrasty, are of more satisfactory technical quality, but limited to only five pieces of the Greek or Graeco-Bactrian series, so that important novelties of other periods are wholly unrepresented. Though a specialist numismatic volume may remain a long-term desideratum, the present album gives a valuable survey of the larger exhibits, well supported by Rowland's authoritative introduction and serviceable bibliography.

A.D.H. BIVAR

INDUSTRIAL WORKERS IN AFGHANISTAN

Horst Büscher, Die Industriearbeiter in Afghanistan. Verlag Anton Hain, Meisenheim am Glan (Germany) 1969. Afghanische Studien, Band 1. 379 pages. Reviewed Jiri Eechka.

This very comprehensive book was published as the first volume of the Afghanische Studien / viz ArOr 41, 1973 /. It sheds very clear light on a number of problems of the Afghan society and especially, of course, of the rising working class. It also brings a lot of new material. The first chapter /p. 1-74/ is devoted to theoretical questions of the society and in particular to the "socially weak strata" in the developing countries. The next chapter analyses the position of industrial workers and their standard of living, and finally the third chapter presents the author's propositions for reforms which would improve the living standard and solve the social problem "within the framework of a single social policy" /im Rahmen einer Gesellschaftspolitik/.

The author is aware of the difficulties linked to any kind of evaluation attempts due to the deficiency of statistic material /e.g. pp. 49, 50/. On several places he attacks superstition that now and then governs the minds of some western scholars, economists and sociologists that eastern workers are generally less able than the western ones. In the author's opinion this is the result of an utterly superficial observation / pp.

125, 131/. The emploment of women is discussed rather extensively; in this point it is interesting that in some fields women by rule get higher wages than men. which is supposed to induce the women to come to the factories. The author comments the paradoxical situation in which a qqualified worker can earn more money than a university professor. On the other hand, however, an unqualified worker/ especially if he does not own land/ usually does not earn enough to maintain his family, which is on Afghan standard rather large, and the man often must have a second employment.

A lot of space is devoted to the measures adopted till this day by the state for the amendment of the position of industrial workers, namely the Labour Code of 1946 / p. 190 f/, as well as the draft new Code / Appendix No. 1, pp. 324 - 354/. On the whole, the author judges the economic prospects of Afghanistan as good/ in spite of various unfavourable circumstances/, especially in view of the fact that the people in Afghanistan are intelligent and industrious. He remembers the example of Switzerland "a small state /Volk/ with nearly no home market. which however developed certain branches of industry, leading in the world, and prevented the growth of large towns of the industrial proletarian type."

The text has certain small shortcomings. Of these it is necessary to correct the statement that the word Dari-(Persian language) is derived from the name of king Darius /p. 82, note 34/. There are several explanations, nad the most acceptable one is probabl: Dari- "belonging to the court," i.e. the language spoken at the royal court. I also do not think that the differences between the Sunnis and Shi c ites would be less sharp in Afghanistan than in other countries /p. 85/. E. Heinemann's "modernisation without the industrial revolution...which will not break the social and moral composition, as was the case in old industrial countries" is no doubt attractive and comfortable. but definitely only wishful thinking.



News

Republic of Afghanistan established

On July 17, 1973 the old regime (the kingdom) was replaced in a white coup d'etat in Afghanistan, and a new republican order successfully took its place. The new regime was announced by the leader of the coup d'etat Mohammad Daoud, President of the State and Prime Minister of the Republic of Afghanistan. The announcement was carried by Radio Afghanistan at 7 o'clock on the morning of July 17, 1973.

Letter of deposed King to president of Afghanistan

KABUL, Aug. 29, (Bakhtar).— the following letter, dated Asad 21, has reached the President of State and Prime Minister from Mohammad Zahir Shah, the deposed King of Afghanistan in regard to his abdication.

ASAD 21, 1352

ROME

In the name of God, the Merciful and the Compassionate,

My brother, Excellency the President:

Eversince I heard the news regarding the recent occurrences my thoughts were occupied with my country, and was concerned for its future.

But as soon as I realised that the people of Afghanistan for the future conduct of their national affairs, with absolute majority welcomed a Republican regime, respecting the will of my compatriots I consider myself as having abdicated from the throne of Afghanistan, and herewith I inform you of this resolve.

While my wish is for the prosperity and progress of my dear country, I place myself as an Afghan citizen under the banner of Afghanistan.

It is my prayers that the great and Almighty God will ever remain protector and helper of my country and my compatriots.

Mohammad Zahir

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Editor:**Mrs. Maliha F. Zafar****ADDRESS:**

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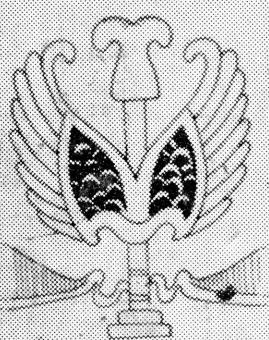
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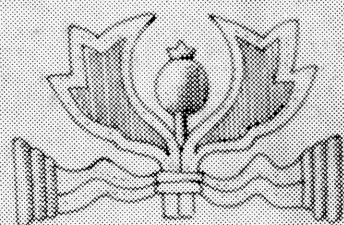
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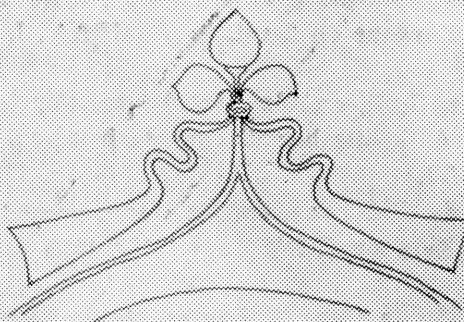
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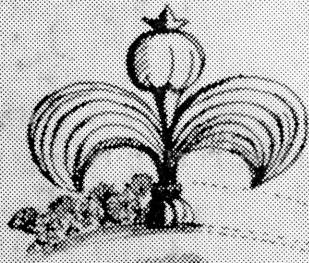
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