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The Defensive System of Roman Dacia

By NICOLAE GUDEA *

THE provisions in the will of Augustus concerning the boundaries of Roman empire came to be disregarded. The Rhine and the Danube, indeed, formed the Northern frontier of the Empire in continental Europe, and mountains and desert bordered the Empire on the east and the south and the Atlantic Ocean on the west. Yet, in spite of the fact that the Danube formed a natural boundary that was relatively secure in Eastern Europe, two areas remained vulnerable and caused the strategists of Rome great anxiety: the Bohemian plateau on the middle course of the Danube and the Transylvanian plateau on the lower. The first was never to be conquered;¹ the second, where the centre of the Dacian state was established, became too dangerous and the Empire had to concentrate all its strength for its conquest (FIG. 1).

The causes of the conquest of Dacia were numerous, among which the strategic position and importance of that country were the most important.² The military interest of the empire was also closely linked with its economic advantage. Dacia was extremely rich in metals (gold, silver, copper), minerals (especially salt), and possessed fertile lands, forests and extensive pastures. This land was the cradle of coherent and lasting civilizations from the Bronze Age onwards. The emergence of the Geto-Dacian civilization and the Dacian state can be considered the climax. The Romans quickly appreciated its military and economic potential; after the conquest they ensured its security by a strong defensive system based on a large army. The aim was clearly the installation of a strong 'Romanitas'. The Roman conquest did not interrupt the material development of Dacian native civilization, but on the contrary contributed to its integration in new and more advanced forms.

The role of the defensive system of Dacia is revealed by the military history of the two centuries following the conquest, which showed clearly the value of the decisions made by Trajan and the important place Dacia held within overall Roman strategy. Through the creation of the province of Dacia an advanced bastion was installed in the barbarian world, the potential unity of the enemy front was broken and the security of all the Roman provinces along the

*The writer desires to thank Mr Nubar Hamparțumian for translating his text from the original Romanian and Professor J. J. Wilkes for improving its presentation in English.

The following abbreviations are employed:

AEM *Archäologisch-epigraphische Mitteilungen*, Wien.

AIIA *Anuarul Institutului de istorie și arheologie*, Cluj-Napoca.

AISC *Anuarul Institutului de Studii Clasice*, Cluj-Napoca.

SCIV, *Studii și cercetări de istorie veche*, București, from 1974 (Vol. 25) *Studii și cercetări de istorie veche și*

SCIVA *arheologie*.

¹ Still a conceivable ambition at the beginning of Commodus's reign, see Herodian I 5.6 (L.C.L. vol. i p. 26 with note by C. R. Whittaker).

² For the Roman campaign against the Dacians, see C. Patsch, *Der Kampf um den Donauraum unter Domitian und Trajan, Beiträge zur Völkerkunde von Südosteuropa* V/2 (Vienna 1937); also R. P. Longden, *CAH* xi (1938), 223-36. On Dacia before the Roman conquest see H. Daicoviciu, *Dacia de la Burebista la cucerirea romană* (Cluj 1972).

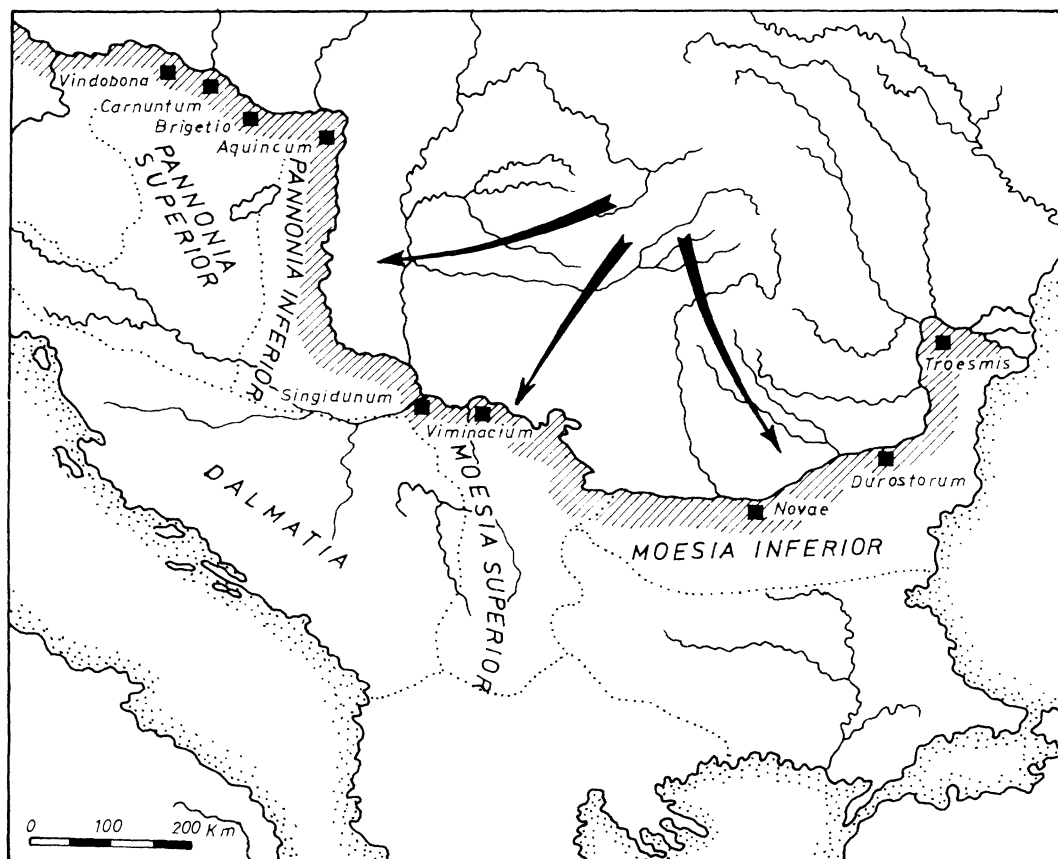


FIG. 1. Roman *limes* on the Danube and the expansion of the Dacian kingdom.

Danube, from its bend at Aquincum to its delta on the Black Sea, was guaranteed. Dacia represented a safer natural frontier, a *propugnaculum* that was virtually invincible from the military point of view and dominated a large area. From there the enemy could be closely watched and when necessary attacked both on the flanks and from behind. As a result of the conquest a lasting scheme of defence was established in Eastern Europe.

The strong defensive system of Roman Dacia was integrated within the general strategy of defence – the Transdanubian part of the frontier on the middle and lower Danube – and played an important role not only in the security of Danubian provinces, but even in that of Italy.³

Its organization shows once again how the Empire anticipated the main directions of attacks and contrived a plan for the effective use and deployment of military strength. The defensive system of Dacia appears to have played a pre-eminent strategic role. From the point of view of tactics, the organization and the preparation of the actual military operations, it amounted to the concentration of a large number of mobile forces within a relatively restricted geographical area.

The military organization of Roman Dacia was determined by the physical geography of

³ For the impact of the conquest of Dacia on the other Danubian provinces and peoples bordering the empire see C. Patsch, *Rev. int. Ét. Balkaniques* (1934–5), 426.

Transylvania, a high plateau almost completely encircled by mountains. This circle is formed by three ranges, the Eastern Carpathians (moderate altitudes, triple petrographic zone, parallel summits and numerous depressions where routes from both sides converge, and broad valley openings), the Southern Carpathians (few depressions and interruptions, and few passes or gorges) and the Western Carpathians (more broken with major passes aligned north-south, moderate altitudes and many depressions which penetrate deeply).⁴

The transition from plateau to mountains in the interior of the Carpathian arc is abrupt to the west, the east and the south, more gentle to the north. The transition to the plain is gradual on the exterior. Together with the plateau the mountains constitute a natural fortress at the centre of low plains – to the west (the Theiss plain), to the north (the Polish plain), to the east (the Russian plain) and to the south (the Romanian plain). The south extremities of the Southern Carpathians and the sub-Carpathian hills approach the Danube and provide a natural link with the regions to the south. Routes through defiles and high passes, or along rivers, existed between this high plateau and the outside lower zones. They facilitated links between the extra- and intra-Carpathian civilizations and contributed to their unity even in the prehistoric periods. The Romans used them fully. The widest are the corridor of the Mureș, and the Poarta Meseșului, both situated on the West.

There are no written sources describing the defensive system as a whole. The ancient geographers were aware of the particular position of the Transylvanian plateau and they refer to it in their works. Jordanes (*Getica*, 74) writes: 'Dacia is a land which, across the Danube seen from Moesia, is girded with a ring of mountains. It has two approaches, one by Boutae, the other by Tapae'. He also states (*Getica*, 34): 'Within these Dacia is protected by formidable Alps in the shape of a ring'. There are also some details of the length of the Dacian boundaries. Both Eutropius (*VIII*, 2, 2) and Rufus Festus (*VIII*, 2) refer to it in almost the same terms: 'Dacia has a perimeter of a thousand miles', indicating that they used a common source if not the same information derived from different sources. The distance is about 1479 km and seems to correspond with the line agreed by Romanian scholars as the boundaries of the province or provinces of Roman Dacia.

Analysis of the defensive system allows us to determine some strategic principles which guided the arrangement of its elements:⁵ 1. Network organization based on the arteries of communication with the lines of defence facing to the west, the north and the east. 2. An outer ring of fortifications on the border of the plateau which blocked all access-routes to the interior. It formed the *limes*, and was the most important part of the defensive system from the strategical and tactical point of view. 3. The creation of a central defence in the middle of province at places with wide possibilities of manoeuvre. There the legions were installed; first at Apulum, from where movement was easy to the west along the Mureș, and later at Potaissa from where the zone of the Someșan plateau could easily be controlled; 4. The installation of intermediary fortifications, a ring of control between the *limes* and the central bases; it should be noted that all the fortifications of this intermediate ring were placed at the crossing of roads, in places which facilitated rapid movement; 5. The installation of strong points along some major routes from the south, which were branches of the great roads along the Danube; these posts existed especially in the south-east and the west.

These factors determined the tactical deployment of units within the system. Two legions secured the central defence; units of cavalry (*alae* and *numeri*) were stationed especially on the

⁴ *Monografia geografica a R.P. Române* i (București 1960), 95–6, 97, 187, 229–30.

⁵ The first systematic treatment of the defences of Roman Dacia is A. v. Domaszewski, *Rhein. Mus.* xlviii (1893), 240–3 cf. E. Fabricius, *RE* xiii (1926), 640–2 (*Limes*). Also noteworthy are J. Jung, *Fasten der Provinz Dacien* (Innsbruck 1894), 130 ff.; V. Christescu, *Istoria militară a Daciei romane* (București 1937); C. Daicoviciu, *La Transylvanie dans l'antiquité* (București 1945), 104 ff.; J. Szilagyi, *A Daciai erődrendszer helyőrségei és a katonai téglalabelyegek* (Budapest 1946) (Diss. Pann. ser. 2, 21) 4–39; St. Ferenczi, *Apulum* xi (1973), 191 ff.

intermediate line, and the fighting character and strength of those auxiliary units established in the forts on the *limes* were determined by geographical conditions and the nature of the outside enemy (see below).

The defensive system of Dacia was largely conceived and organized under Trajan⁶ and fully developed in the reign of Hadrian.⁷ Very few changes took place later. Hadrian's successors improved the defensive system only in detail, either by strengthening them or by tactical concentrations. The later territorial changes (see below) did not alter the principles on which the *limes* was organized. It appears that the defensive system reached its maximum strength at the beginning of the third century in the time of the Severi,⁸ when the majority of forts was built in stone and the total of military units was at its greatest. The withdrawal from Dacia in 275 was due not to the weakness or the destruction of the Dacian defensive but rather to events which occurred outside Dacia, especially to the disasters in Moesia Inferior and Thracia. By then the defensive system of Dacia could protect only Dacia; its strength could no longer contribute to the defence of neighbouring provinces. Its role was outdated.

By defensive system we mean the totality of the organized defensive means installed for the security of a certain area. These can be deployed at once immediately after the conquest, or can evolve according to the needs and new circumstances which occur during the passage of time. On the basis of this definition, it is possible to assert that the development of a defensive system can be static (by strengthening the defensive components already installed) or dynamic (by extending the territory). Territorially the Dacian defensive system developed in two stages: (a) In 106–118, when Roman Dacia meant only the Transylvanian plateau and the Banat, the defences were orientated against the west-north-east; (b) From 118 Dacia expanded to the south-east when Dacia Inferior was created in Oltenia and Muntenia; a new defensive zone against the south-east was added to the first. In the matter of static development (especially tactical concentration) three stages closely connected with the territorial development can be distinguished: (i) two legions stationed in the centre and the south-west of Dacia on the lines of defence facing the west and north-west (FIG. 2); (ii) corresponding with the territorial extension to the south-east, after which only a single legion remained in Dacia facing the route to the west (FIG. 3); (iii) a new legion was transferred to Dacia Porolissensis on the defence line facing the west-north-west (FIG. 4).

M. Macrea vividly described the defensive system of Roman Dacia as 'an immense fan with strong camps at Apulum and Potaissa in the centre and ribs radiating to the boundaries'.⁹

The *limes* itself was the most important part of the system, and for this reason scholars still pay most attention to it. Frequently, the defensive system was identified solely with the *limes*.¹⁰ The *limes* in Dacia, as those in almost all frontier-provinces, was an external line, the first line of contact with the enemy. In the second and third centuries its purpose was to ensure the rapid concentration of troops in any place attacked or even menaced; troops were stationed even on the boundaries. The movement of troops was ensured by the network of roads and the training of the soldiers. Leaving aside the roads, two distinct parts of the frontier-defence are examined here, the fixed part (fortifications) and the mobile part (troops). The former included several closely linked elements: fortresses (and forts) as bases for troops, an advanced zone of

⁶ Construction of Roman forts depicted on Trajan's column probably represents those in the immediate vicinity of the Dacian citadels, C. Daicoviciu and Al. Ferenczi, *Cetățile dacice din munții Orăștiei* (București 1951), 43 ff.

⁷ M. Macrea, *Viața în Dacia romană* (București 1969), 222–3.

⁸ M. Macrea in *Istoria României* i (1959), 370.

⁹ M. Macrea, *op. cit.* (note 8), 376.

¹⁰ For the use of the word *limes* in literary and epigraphic sources see G. Forni in *Dizionario Epigrafico* iv (1959), 1076–84.

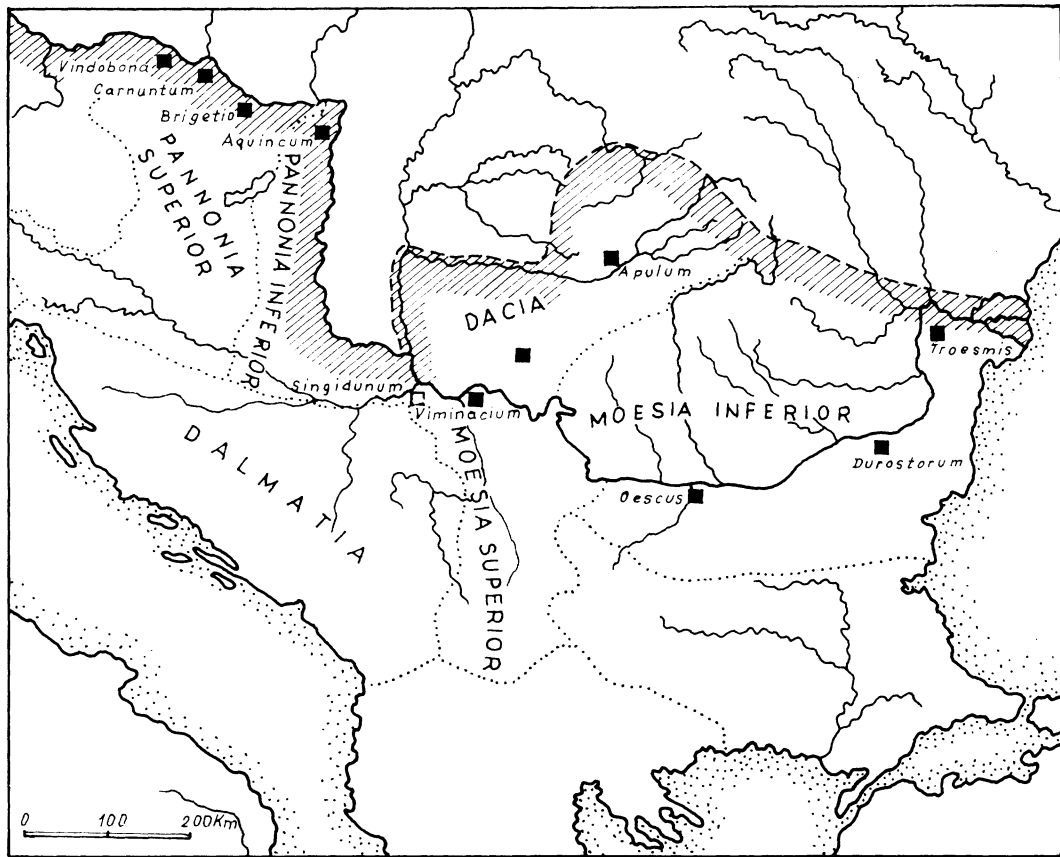


FIG. 2. The first organization of the territory north of the Danube under Trajan.

towers for observation and linear and other fortifications. It emerges that Dacia had not just a perimeter defence but one that was organized in depth.

For reasons of geography, the Dacian *limes* presents some peculiarities; it differs from the typical *limes* on other frontiers,¹¹ for example in Britannia, Germania Superior and Raetia. The particular character of the Dacian *limes*, attested especially on the plateau in Transylvania, displays the elements of the 'typical' *limes*, but arranged in a different fashion as required by the local geography. Its main elements, namely the forts, were located in the interior, in front of the passes or at observation-places between passes, in order to forestall any attempt at penetration. The watch- or signal-towers of this advanced line were placed mostly on heights, in front of the forts and sometimes between them. Vallum, *clausurae* and other defensive works are to be found in this zone. There are no new types of construction in the Dacian *limes*: it simply integrated the classical elements into a new context. In areas outside the Transylvanian plateau used for the links with the rest of the empire the deployment of forces matched that in

¹¹ Romanian scholars have in the past used the term *limes* only for an artificial frontier with rampart and ditch, for example C. Daicoviciu, *AISC* ii (1933-5), 255-6 and *Dacia. Studii și articole privind istoria veche a pământului românesc* (Cluj 1969), 249. Others have applied the term to an advanced line of towers in front of the forts, C. Torma, *A limes dacicus felső része* (Budapest 1880).

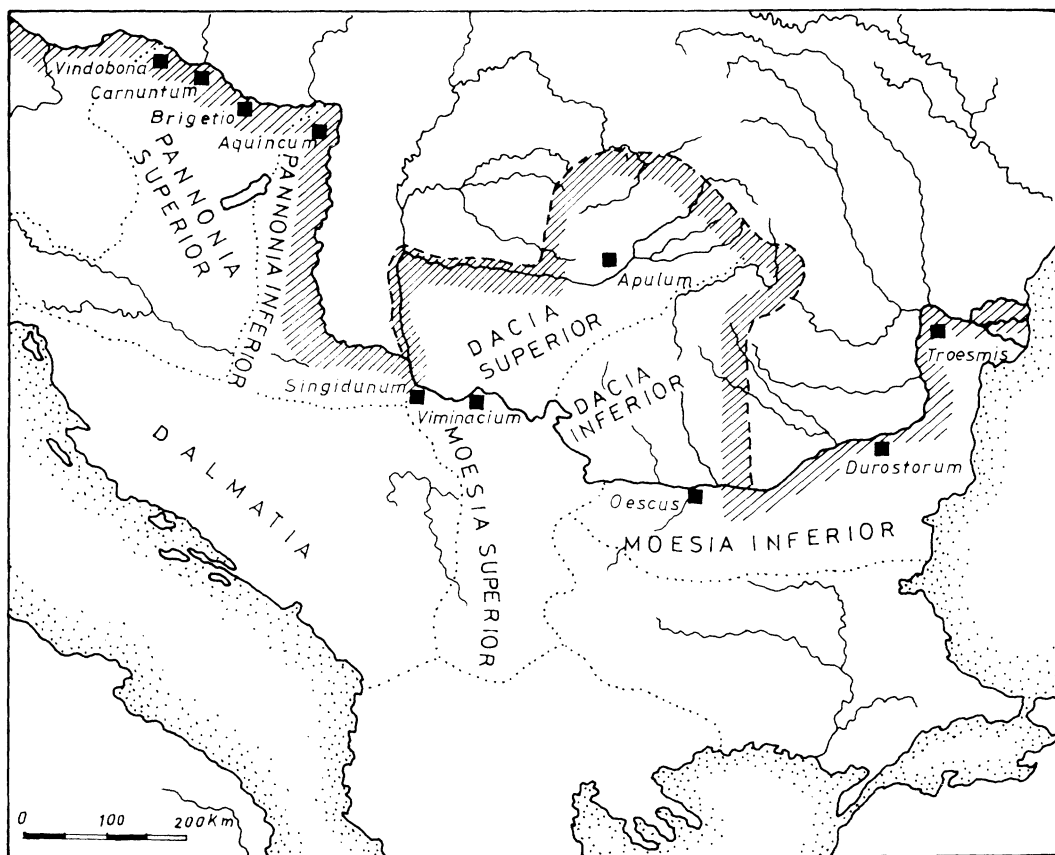


FIG. 3. The *limes* of Dacia after the changes introduced by Hadrian.

other provinces, for instance the forts situated along some rivers (Mureş, Olt) (Sectors I, XI),¹² along some roads (Sectors III, IV)¹³ or even along a vallum (Sector X).¹⁴ Due to great geographical similarities the defences of south-eastern and south-western Dacia were organized in similar fashions at different periods; we see successive lines of defence. It may have been necessary to move forward the defence to encompass the plain in order to create an area for manoeuvre.

The line of the Dacian *limes*, as identified through archaeological research, was very long.¹⁵ It is likely that a number of changes were made to the line of the *limes* but little can yet be said of these with any certainty. Some changes of line which have been so far identified or deduced do not modify the principles on which the system was organized.

The conquests of Trajan north of the Danube were larger than the later province of Dacia.¹⁶

¹² D. Tudor, *Oltenia Romană* (4th ed., Bucureşti 1978), 251; *Tab. Imp. Rom.*, sheet L 34, pp. 30, 43, 45, 87.

¹³ *Tab. Peut. seg. VIII/1* (ed. K. Miller, Stuttgart 1916).

¹⁴ D. Tudor, *op. cit.* (note 12), 250.

¹⁵ St. Ferenczi, *A Koloszávári, 'Victor Babeş és Bolyai Farkas' egyetemek közleményei*, i, 1–2 (1956), 165–7 also Macrea, *Istora Romaniei* i, 351 ff., *Viaţa în dacia romană*, 108 ff.; C. Daicoviciu, *La Transylvanie . . .*, 107.

¹⁶ M. Macrea, *op. cit.* (note 7), 34–42 (with bibliography), R. Syme, *JRS* xlix (1959), 26 ff. (= *Danubian Papers* (Bucureşti 1971), 122–34), Gr. Florescu, *Omagiu C. Daicoviciu* (Bucureşti 1960), 229, also *SCIV* i (1950), 169–74; iii (1954), 218–20.

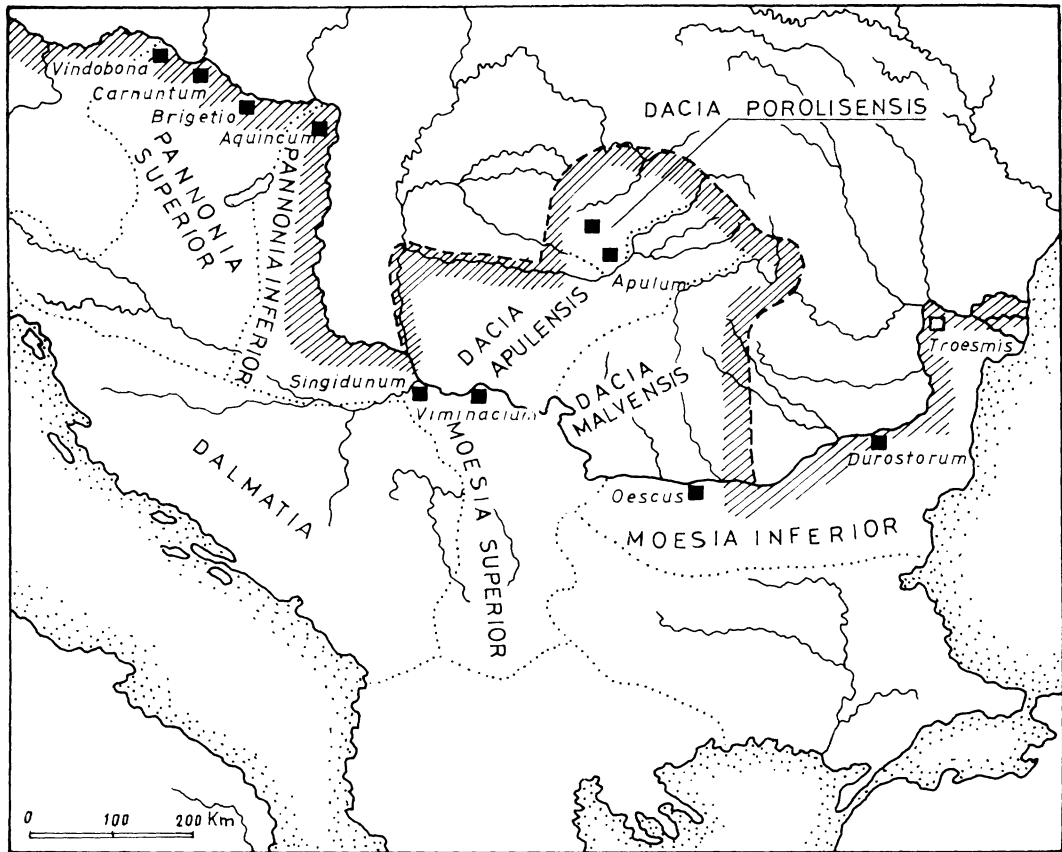


FIG. 4. The *limes* in Dacia in A.D. 120-3 and the changes of 167.

At first the latter included only the Transylvanian plateau (without the south-eastern corner) and the Banat¹⁷ (FIG. 2), while the remainder were attached to Moesia Inferior (southern Moldavia, Muntenia and Oltenia).¹⁸ The line of the *limes* in Dacia in the initial phase left the Danube northwards along the Theiss and then along the Mureş, the western Carpathians, the Someş, the eastern Carpathians, the Olt and then through the southern Carpathians back to the Danube. No remains of this line, at any rate in the south-western and south-eastern portions, have been recorded archaeologically. This organization did not last long. Under Hadrian southern Moldavia and Muntenia were abandoned, and a new province was established comprising Oltenia and south-eastern Transylvania named Dacia Inferior (FIG. 3). Subsequently the line of the *limes* was altered, but the changes affected only the south-eastern portion: there are two variants of this line, their interpretation depending on the date attributed to the so-called *limes transalutanus* (Sector X). If this section is later than the Olt section, then the *limes* turned to the south at the Turnu Roşu (Red Tower) Pass and followed the course of the Olt; if however both are contemporary, then the line turned to the south at the Bran Pass

¹⁷ B. Gerov, *Klio* 37 (1959), 195 ff.; C. Daicoviciu and D. Protase, *Acta Mus. Napoc.* i (1964), 172; I. Glodariu, *Acta Mus. Napoc.* iii (1966), 434; D. Protase, *Acta Mus. Napoc.* iv (1967), 47-50; M. Macrea, *Acta Mus. Napoc.* iii (1966), 134, also *Viața în Dacia romană*, 37-8; C. Daicoviciu, *Civilta romana in Romania* (Roma 1960), 71.

¹⁸ I. I. Russu, *Inscr. Tac. Rom.* i (1976), 19 (with bibliography).

and followed the line of the vallum, 235 km long, to the Danube. It is possible that future investigation may reveal the *transalutanus* line to be earlier than that along the Olt, and in this case a further possibility can be suggested (but only for the dating, not the line).

There are a number of hypotheses concerning the south-western boundary of Dacia:¹⁹ a frontier either on the course of the river Theiss or along the line of forts: Lederata–Berzovia–Tibiscum. Other views suggest that the boundary along the line Lederata–Berzovia–Tibiscum lasted only from 106 to 118: or again that it lasted from 106 to 159. Finally if the western boundary followed the line from Dierna to Tibiscum it emerges that the Banat did not belong to the Dacian province but lay outside the Roman Empire.

It is presumed that a change of line took place in the north-eastern corner of the defensive system, at the angles of Sectors VI–VII, VII–VIII.²⁰

It appears that the defence of the section with the earth barrier was abandoned by the middle of the third century²¹ and in consequence the section on the Olt was soon broken through.²² There is no historical evidence for the history of the *limes* during the last two centuries of the existence of the province.

Because of the lack of written sources and the absence of precise information in the ancient itineraries,²³ the line of the *limes* was identified ‘only by the geographical position of forts; taking into account the fact that the frontier-line was almost always situated in front of them, these delimited approximately the territory of the province’.²⁴ This formulation and the resulting deduction remains for the moment the ‘official’ opinion of Romanian historians.²⁵

The fortifications of the intermediate line were built on the roads running from the central defensive zone to the *limes*. These cannot be included in the *limes* itself, but they constitute the reserve support for it. The soldiers stationed on the frontier were shock-troops and consisted mainly of light infantry, but those on the intermediate line were mostly composed of cavalry and mounted archers. None of the forts on the intermediate line has been systematically investigated. Those at Gilău, Gherla, Sighişoara and Orăştioara have been only partly examined: the results have not been systematically published and the internal plans are not known. Those at Sutor, Cristeşti, Războieni and Cigmău have either not been located or, if identified, have not been investigated.

The legionary fortresses at Apulum and Potaissa, which formed the central defences, have not been investigated. The exact position of the first has not even been identified, having been removed by the later Austrian fortifications. Systematic researches began at Potaissa only 3–4 years ago.²⁶

¹⁹ Concerning the line of the *limes* south and west of Micia (Veţel) a number of hypotheses exist, all based on intuition rather than evidence: (1) the entire Banat was occupied, with boundaries along the Mureş and Theiss, and that this belonged either to Dacia (C. Daicoviciu, *La Transylvanie* . . ., 96) or to Moesia Superior (A. v. Domaszewski, *AEM* xii (1894), 140–4); (2) The Banat was not occupied and the western limit of Roman territory lay along the line Dierna–Tibiscum–Micia (C. Brandis, *RE* iv (1907), col. 1967–76 (Dacia), A. Alföldi, *Bericht VI Int. Kong. für Arch.* (Berlin 1939), 528–38); (3) Eastern Banat was included in Dacia; until 118 the boundary followed the line Lederata–Berzobis–Tibiscum (D. Protase, *Acta Mus. Napoc.* iv (1967), 66–7) or until 159 (A. Radnóti, *Limes* 3 (Basel), 145); (4) The Banat was conquered by the Romans only as far as the line Lederata–Berzobis–Tibiscum (J. Szilagyi, *Közlemények* iii (1943), 90).

²⁰ D. Protase–St. Dănilă, *SCIV* 19 (1968), 531–40; K. Horedt (*SCIV* 25 (1974), 578) upholds the view that the fort at Breţcu and the advanced zone in south-east Transylvania were abandoned under Gallienus.

²¹ D. Tudor, *op. cit.* (note 12), 38.

²² D. Tudor, *Historica* i (Craiova 1970), 67–84. SHA *Claudius* 15,2 says of the future emperor (at that time *dux totius Illyrici*) ‘*habet in potestatem . . . Dacos exercitus*’ and this means that the *limes* was under attack.

²³ *Tab. Peut.* seg. VII and VIII.

²⁴ C. Daicoviciu, *op. cit.* (note 15), 107; M. Macrea, *Istoria Romaniei* i, 350–1, and *Viaţa în Dacia romană*, 108.

²⁵ E. Fabricius, *RE* xiii (1926), 641–2 (*limes*); G. Forni, *op. cit.* (note 10), 1275 does not mention this problem.

²⁶ Research on the two legions is confined to the articles written by Ritterling, *RE* xii (1924), col. 1572–88, 1710–26.

The present state of research on the defensive system must be considered as being only the starting-phase. Study of the *limes* started in Romania in the middle of the last century.²⁷ The few isolated field-observations made then have been complemented by more archaeological excavations. Interest in the *limes* developed slowly and in the wake of research on the *limes* in other Roman provinces.²⁸ After the achievement of Romanian unity, the study of the *limes* advanced more rapidly and was closely linked to the solution of major problems such as the romanization of the province and the formation of the Romanian language and people.²⁹ Systematic study of the defensive system began only in 1950, when the investigation of forts was planned with financial support from the Institutes of History and Archaeology of the Romanian Academy. In spite of some evident progress, the investigation of forts is far from complete and will have to be continued for many years to come.

Earlier attempts to describe the defensive system or the *limes* appear incomplete today through lack of evidence and for other reasons.³⁰

Owing to the large number of fortifications, the length of the line and the relatively short period of systematic investigation, many problems remain without solution: some are connected with the organization, others with the line itself or the dating.³¹ In particular the organization of the southern boundary of the province is far from being understood.³²

Details of construction and planning are known only for a very small number of forts, and finds and evidence of occupation at even fewer. No comprehensive study of the military units has yet appeared. For these reasons it is very difficult to examine the entire system on the basis of approximate datings, or even to study a group of fortifications or some sector of the system on the basis of more precise datings.

The defensive system has an importance wider than just for military history *per se*. The *limes* and the defensive system guaranteed the Roman peace and the development of economic and social life in the province. The military bases were important centres of production and of the diffusion of Roman life. The soldiers or veterans were an important factor (possibly the most important) in the process of Romanization. The study of the defensive system of Dacia is important also for the history of the Roman Empire as a whole. Its elements can provide a framework and even specific criteria for dating; it was conceived and built at a particular period which corresponds with the apogee of Roman military power.

The study and description of the defensive system of Dacia must take account of the stages

²⁷ M. Macrea, *Acta Mus. Napoc.* ii (1965), 141–60; D. Tudor, *op. cit.* (note 12), 10 ff.; I. I. Russu, *Inscr. Tac. Rom.* i, 33–60.

²⁸ For the history of this see St. Ferenczi, *Apulum* xi (1973), 191–2.

²⁹ The 'weaknesses' of the Dacian *limes* is used to support notions that Dacia could not have been fully Romanized, A. Alföldi, *Daci e Romani* . . . , 20 ff. and recently L. Balla, *Act. Class. Univ. Scient. Debrecensis* x–xi (1974–5), 139.

³⁰ See literature cited in N. Gudea, *Aufstieg u. Niedergang der römischen Welt*, II Principat, 6, 858–60. The fullest study is M. Macrea, *Istoria Romaniei* i, 219–35.

³¹ Only for the south west and south east of Dacia do there remain major questions over the line of the frontier. For problems of the former see note 19. For that of the south east see D. Tudor, *Oltenia Romană*⁴, (Bucureşti 1978), 319. The line on the west between the Crişul Repede (Bologa) and the Mureş (Veşel) has not yet been identified. S. Dumitraşcu, *Acta Mus. Napoc.* vi (1969), 483–91, believes that some linear ramparts located and traced by him at the openings of valleys opening west from the Apuseni mountains form part of the Roman frontier. The forts of Sector IX raise problems of dating (Gr. Florescu, *Omagiu C. Daicoviciu* (1960), 227 attributes them to Moesia Inferior). Other problems include the chronological relationship between Sectors X and XI, in particular for the linear frontier-rampart. This has been dated (a) to Hadrian (K. Zangemeister, *Neue Heidelberger Jahrbuch* v (1895), 81–2, I. B. Cătănciu, *In memoriam C. Daicoviciu* (1974), 56); (b) to Antoninus Pius (E. Kornemann, *Klio* 7 (1907), 105); (c) to Septimius Severus (V. Christescu, *Istros* i (1930), 73–5; D. Tudor, *SCIV* 6 (1955), 90; M. Macrea, *SCIV* 8 (1957), 221).

³² D. Tudor, *Oltenia Romană*⁴, 319 presents it as a fourth line of defence; see also M. Macrea, *Viaţa în Dacia romană*, 233.

of research noted above. For the moment, we accept the views of M. Macrea,³³ who has produced the most complete study of its organization, until further research and debate eliminate remaining areas of speculation. This does not mean that it is the only interpretation or that we consider it as being the definitive study.

To improve understanding of the defensive system of Roman Dacia, I proposed some years ago a scheme of presentation: the fortifications were numbered from west to east via the north; the line of the *limes* was divided into sectors according to the direction which they faced; the internal ring and the fortifications of the central core were distinguished separately³⁴ (FIG. 5). This method, borrowed from English and German scholars,³⁵ has the advantage of giving a general view of the system as a whole and allows a more systematic description of its elements; it is also flexible and allows the elimination or introduction of sites as research progresses. Since this has not met with objection, we retain the same presentation in the present work in the hope that it best serves our purpose.

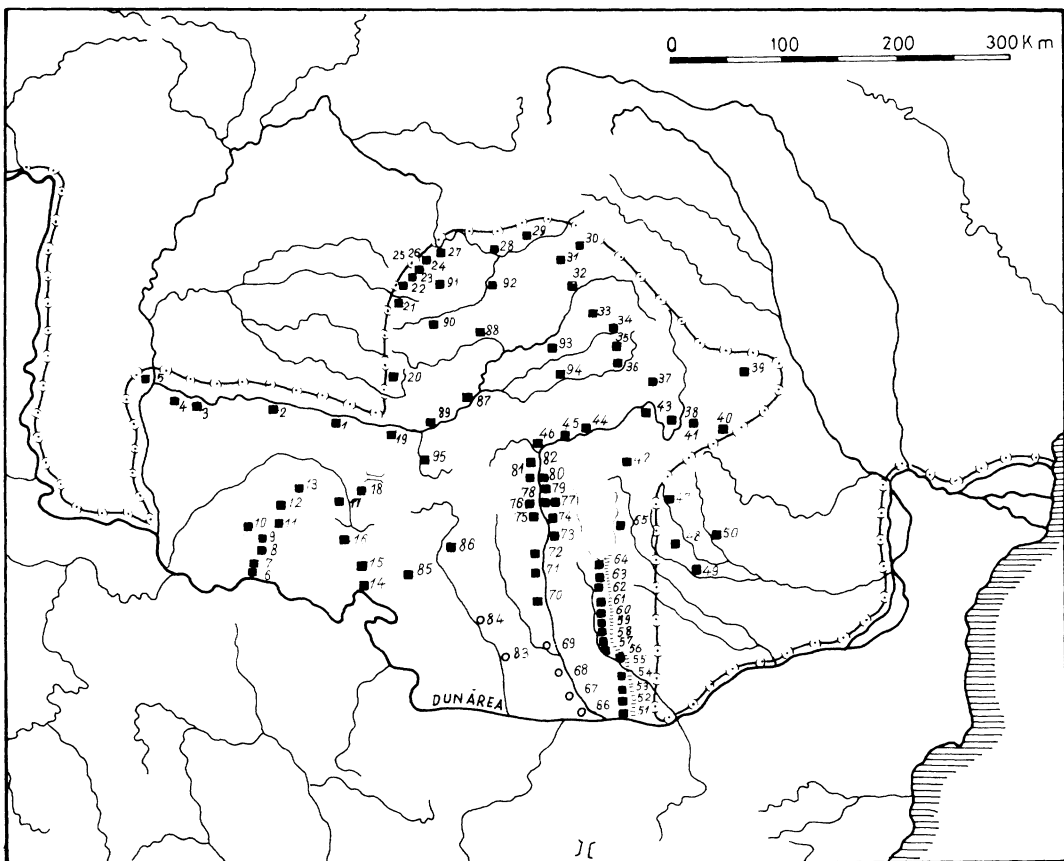


FIG. 5. Military sites in Dacia (see appendix pp. 86–7).

³³ *Viața în Dacia romană*, 218.

³⁴ N. Gudea, *Saalburg Jahrbuch* 31 (1974), 41–9 with some inversions to the list of forts (pp. 48–9) which do not match the text. See *Aufstieg u. Niedergang der römischen Welt II Principat* 6, 849–76; also *Acta Mus. Porolissensis* i (1977), 97–112.

³⁵ Eric Birley, *Research on Hadrian's Wall* (Kendal 1961); H. Schönberger, *JRS* lix (1969), 144–96.

The system is presented as a whole, ignoring the provincial division of Dacia, although the latter corresponded to military commands. It is probable that the provincial subdivision of Dacia was determined by the military districts. Practically all the elements of the defensive system (*limes*, the intermediate line, the central core) are distributed among the three provinces, Porolissensis, Apulensis (=Superior), Malvensis (=Inferior). The entire northern frontier and the northern parts of the western and eastern frontiers belonged to Dacia Porolissensis; the western boundary (excluding its north-western sector) and the entire eastern edge of the Transylvanian plateau defined Dacia Apulensis. Dacia Inferior comprised only the south-eastern boundary, which lay either along the transalutian vallum or along the river Olt. Excluded from this discussion is the problem of fortifications on the Danube, marking the frontier between Pannonia Inferior and Moesia Superior on the south and Dacia to the north. We know so little of these places that any attempt at systematic description is altogether premature.

The defensive system was divided into three main parts: the central defence, the intermediate line and the *limes* (FIG. 5). The *limes* was divided into three large zones defined by geographical features and the anticipated direction of defence or attacks: (i) the defence of the south-western zone of Dacia (Banat); (ii) the external defence of the Transylvanian plateau; (iii) the defence of south-eastern Dacia (Oltenia). Each sector of the *limes* is presented here as a whole. It is more difficult in the case of the zones whose defence seems to have been based on successive lines. In these, the sectors are given a number and listed from the exterior to the interior.

The arrangement adopted here excludes the presentation of any detailed analysis of military units, which merits a full-scale study on its own. The military units and troops in general will be mentioned only briefly; only those whose name or date of arrival in Dacia can contribute to the dating of a fort or the elucidation of its role will receive detailed reference.

In practical terms the system functioned as a single entity; the theoretical subdivisions adopted above are necessary only for the systematization of study. Here we must admit that our own research in the field deals with that part of the system now situated in Transylvania and the Banat. Those parts which lie south of the Carpathians are less familiar to us through first-hand research, as is also the bibliography relating to investigations carried out in those areas.

Because most archaeological work has been done on the *limes*, and correspondingly less in the central zone and the intermediate ring of forts, in the following pages we shall concentrate on the problems of the *limes* and deal much less with those of the defensive system as a whole.

The Roman roads in Dacia³⁶ are very little known and almost nothing can be said about the roads belonging directly to the *limes*. The geographical sources (Tabula Peutingeriana, Itinerarium Antonini) mention three main roads running from the Danube towards the interior of the province as far as Porolissum, and also some roads which linked Dacia with other provinces. Milestones found in Dacia confirm in part the existence of these roads and furnish important evidence about their branches. Observations on the ground – many of them still unpublished – and some deductions based on the economic development of the province allow us to infer the outline of the network of roads in Dacia.³⁷

The advanced line of watch- and signal-towers was identified in the north-western sector of the *limes* at the end of the last century.³⁸ Owing to a wholly erroneous interpretation of the

³⁶ The ancient itineraries contain little on Dacia, K. Miller, *Itineraria Romana* (Stuttgart 1916); V. Christescu, op. cit. (note 5), 106–9.

³⁷ M. Macrea, op. cit. (note 27), 153. The archaeological evidence is awaited.

³⁸ C. Torma, op. cit. (note 11), whose work was continued by A. Buday, *Dolg. Cluj* iii (1912), 107–18; A. Radnóti, *Arch. Ért.* (1944–5), 137–68; C. Daicoviciu, *AISC* ii (1933–5), 254–6; St. Ferenczi, *SCIV* (1959), 337–50; *Acta Mus. Napoc.* v (1968), 75–98. The expression *Limes Dacicus* has been largely eliminated from specialist literature but this does not mean that it is not still employed erroneously by different historians either for a certain sector (the north west) or for the whole *limes* of Dacia.

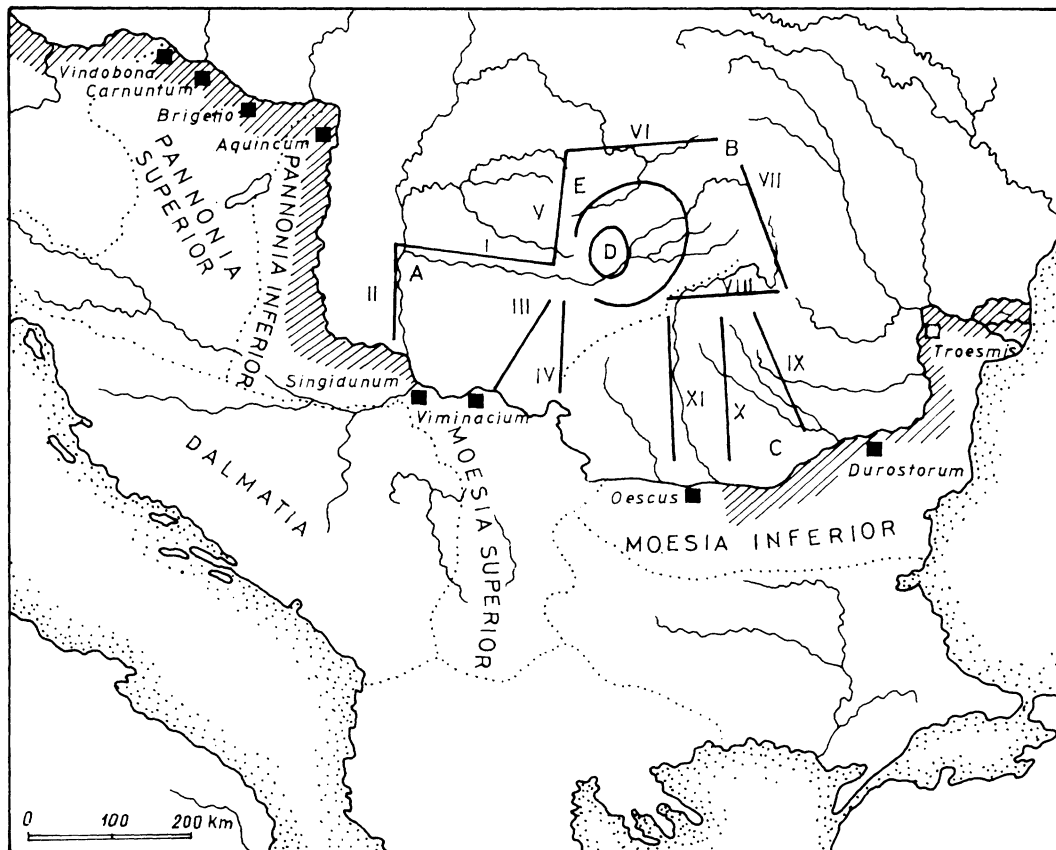


FIG. 6. Schematic plan of the *limes* in Dacia by sectors (see appendix pp. 86–7).

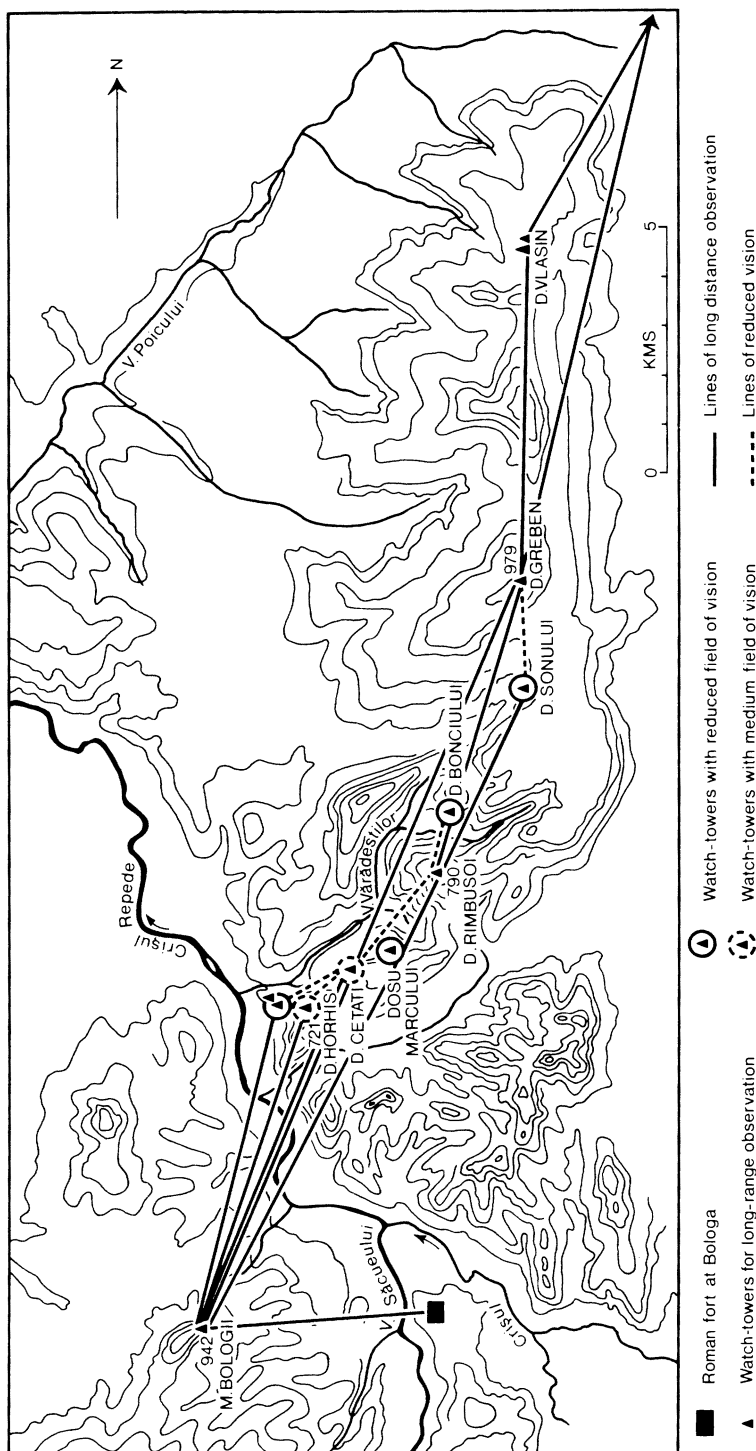
manner of building the advanced line of defence in this part, the specialist literature uses improperly the term '*limes Dacicus*' for the entire western boundary of Dacia. Sections of the advanced line have also been identified on the eastern *limes*.³⁹ Archaeological researches have been carried on mostly in the north-western sector⁴⁰ while field-observations and the identification of an advanced line of towers has continued systematically in the northern sector and in the northern part of the eastern sector of the *limes*.⁴¹ According to these, the advanced line consists of towers made of earth or more commonly of stone, fortlets and even parts of a vallum or *clausura*. All these fortifications were on heights in front of the forts at a distance varying between 1.5 and 15 km. Attempts have been made to link the towers of the advanced line with the forts (FIG. 7), to determine their function and even to date them.⁴² On the basis of the

³⁹ A. Lattyak, *Dolg. Cluj* viii (1917), 218–32; G. Teglás, *Akademiai Értesítő* vi (1885), 413–22; *Archeologiai Közlemények* 19 (1895), 5–54; *Erdelyi Múzeum* 13 (1896), 384–9, 416–27; 17 (1900), 261–9, 313–24.

⁴⁰ N. Gudea, *Acta Mus. Napoc.* vi (1969), 507–30.

⁴¹ St. Ferenczi, *St. Com. Satu Mare* (1969), 91–110; *File de Istorie* ii (1972), 37–46; iii (1974), 181–99; *Limes IX Mamaia*, 201–5; *Sargetia* x (1970), 79–104; xi–xii (1974–5), 295–99. I. Mitrofan of the Museum of History of Transylvania at Cluj-Napoca has excavated a tower on the northward-facing *limes*. The investigations begun by St. Ferenczi on the line of towers in the east remain unpublished.

⁴² As yet only for the advanced line of the north-west section, St. Ferenczi, *Acta Mus. Napoc.* v (1968), 75–98 (with map); N. Gudea, *Acta Mus. Napoc.* vi (1969), 507–30.

FIG. 7. Organization of the *limes* in depth: the fort at Bologa with its line of advanced towers.

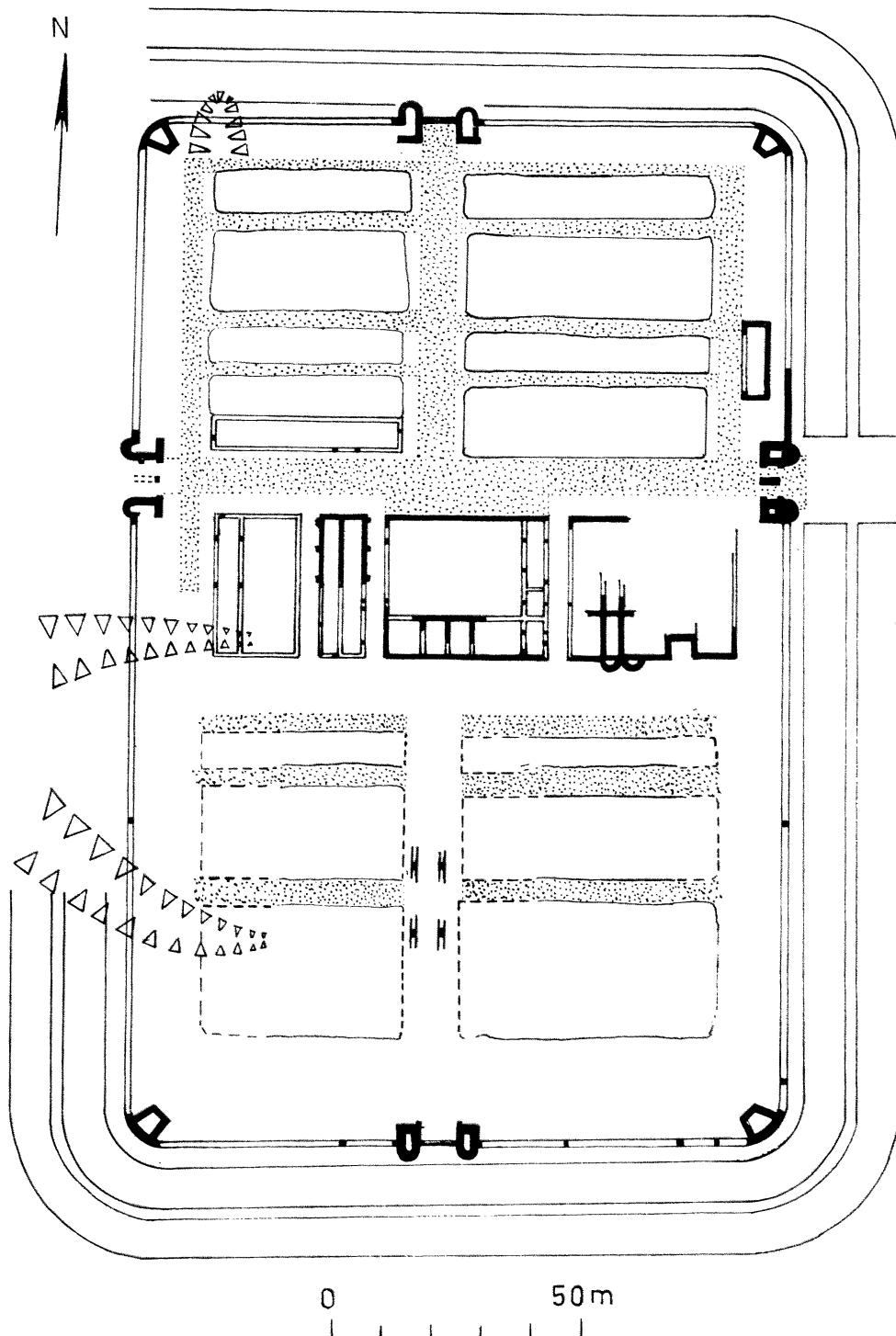


FIG. 8. Plan of fort at Bologna (No. 21).

situation attested in the north-western and western sectors and the evidence obtained by the first investigations carried out in the eastern sector, it is argued that the advanced line of watch- and signal-towers existed along most of the *limes* and was organized in an almost identical fashion.

The main element of the *limes* was the forts garrisoned by auxiliary units. In the present state of knowledge, it is possible to draw the following conclusions about the site, role and size of these forts. According to their geographical siting, the following groups can be distinguished: forts on high and level plateaux at the confluences of rivers (21, 23, 27, 29, 80); forts on high and sloping plateaux at the confluences of rivers (22); forts on high plateaux on the banks of rivers (39, 50, 73, 78, 79); forts on high and sloping plateaux near or above passes (25, 26) or between passes (35); forts on hills enclosed by precipices (41, 60, 63); forts on the high banks of rivers (38, 43, 40, 32, 69, 71); forts on the sloping banks of rivers (15, 17, 19, 28, 42, 45, 76, 65, 65a and probably 1, 2, 3, 4, 5, 11, 12). The forts in the sectors on the plains were usually situated on roads, although this does not mean that their position was not connected with the control of crossing places. Virtually all the forts located on the Transylvanian plateau guarded the entrances to the plateau leading either through defiles or passes along the courses of rivers.

By the standards of Roman auxiliary forts in general those in Dacia are of medium size. The majority have sides between 100 and 150 m long and areas of between 1.5 and 2.3 ha. There are also a few larger (17, 19, 21, 26, 43, 68) with sides exceeding 150 to 200 m in length, and some unusually small for the current definition of auxiliary fort (69, 72, 74, 76, 78, 79). However since an inscription (CIL iii, 13796) refers to them by this name (*castra*), they must be considered to be forts.

In the first phase of Roman Dacia forts had earth ramparts.⁴³ Of the 96 forts so far recorded, 39 are known to have had this type of defence. All the forts on the *limes transalutanus* (Sector X, 15 forts) had earth ramparts which were retained in use until the end of occupation. The same is inferred for two forts (11, 12) in Sector III. Eighteen forts in Sectors IV–VIII were built initially with earth ramparts and were later rebuilt with stone walls (10, 15, 16, 17, 19, 22, 23, 25, 26, 27, 28, 32, 33, 34, 35, 37, 38, 39, 42, 43, 44, 48, 68); four forts on the intermediate ring with a first phase of earth rampart were also restored with stone later (89, 90, 92, 95). In the present stage of knowledge it has not yet been possible to identify an initial phase of earth ramparts in many forts.

It is assumed that the majority of those forts with earth ramparts were built during the wars against the Dacians or in the immediate aftermath.⁴⁴ Certainly, with the exception of Sector X (*transalutanus*), for which definite evidence is lacking and which in the view of many specialists can be dated no closer than between 120 and 200, this dating of the forts with earth ramparts is based only on arguments of probability. Very few forts are dated on the basis of the date of the arrival of the unit which encamped there, and far fewer forts are dated by archaeological evidence.⁴⁵ Geological features no doubt mainly determined the manner of the building of earth ramparts. The problem is still much discussed, because the number of investigations is small; several hypotheses (inspired especially by German studies) have been published by some Romanian scholars. Excavations have shown that earth ramparts were built of the material

⁴³ N. Gudea, *AIIA* 18 (1975), 71–87, has attempted the first systematic survey of evidence relating to the earth phase of the forts. With some revision through more recent discoveries the hypothesis of the writer remains firmly based. Roman forts in the vicinity of the Dacian citadels ought also to be added to the evidence for this phase, V. Christescu, op. cit. (note 5), 131; C. Daicoviciu and Al. Ferenczi, op. cit. (note 6), 43 ff.; *Tab. Imp. Rom.*, Sheet L 34, pp. 107, 94, 81, 75, 68, 120, 49, 50.

⁴⁴ The archaeological evidence appears to be supported by a number of scenes on the column of Trajan, K. Cichorius, *Die Reliefs der Trajanssäule* I (Berlin 1896); scene of fort-building in the first Dacian War (A.D. 101–2), XI–XIII, XVI–XVII, LX, LXV; and in the second War (A.D. 105–6), CXXVII, CXIII, CXXXV.

⁴⁵ N. Gudea, *AIIA* 18 (1975), 71 ff.

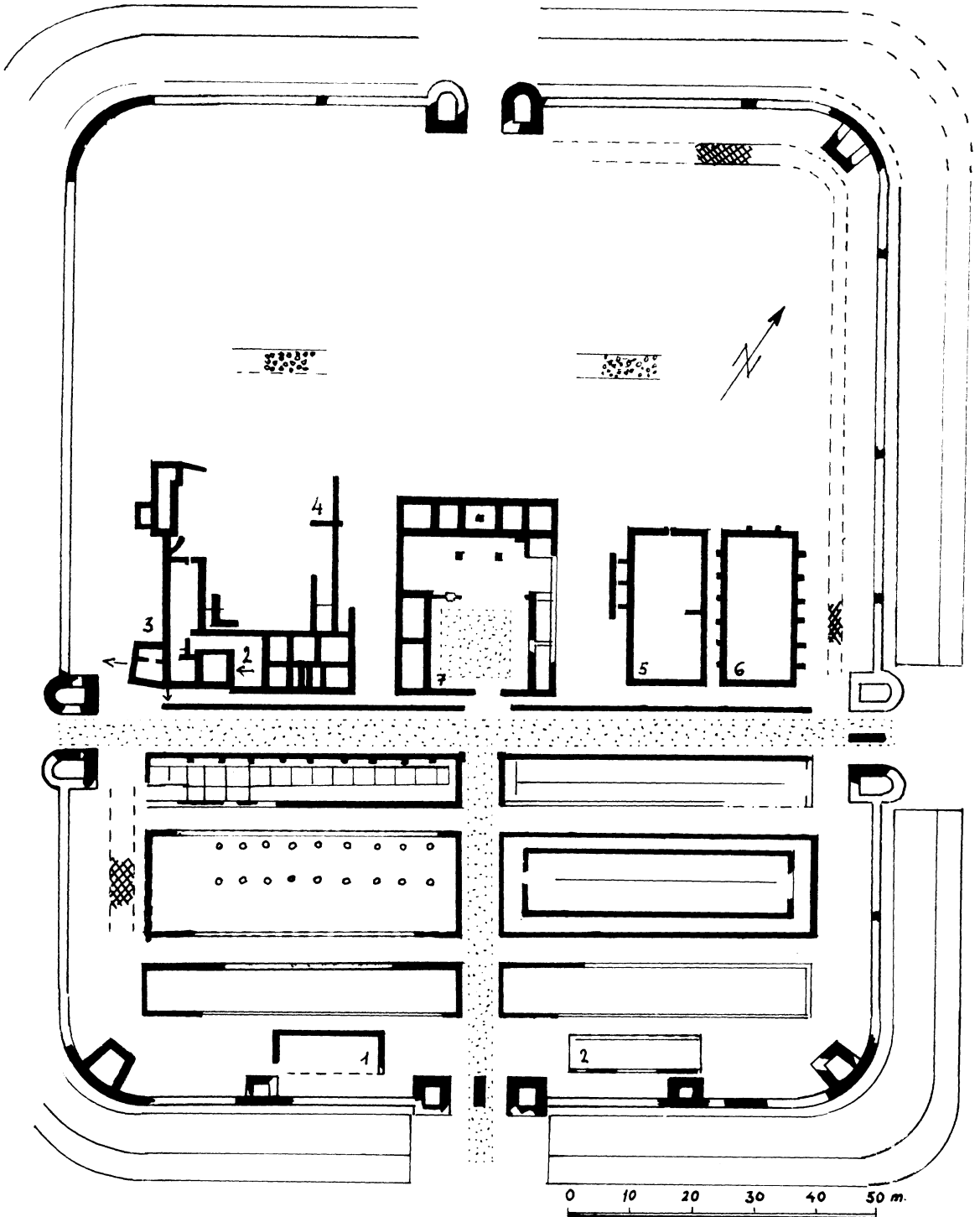


FIG. 9. Plan of fort at Buciumi (No. 22).

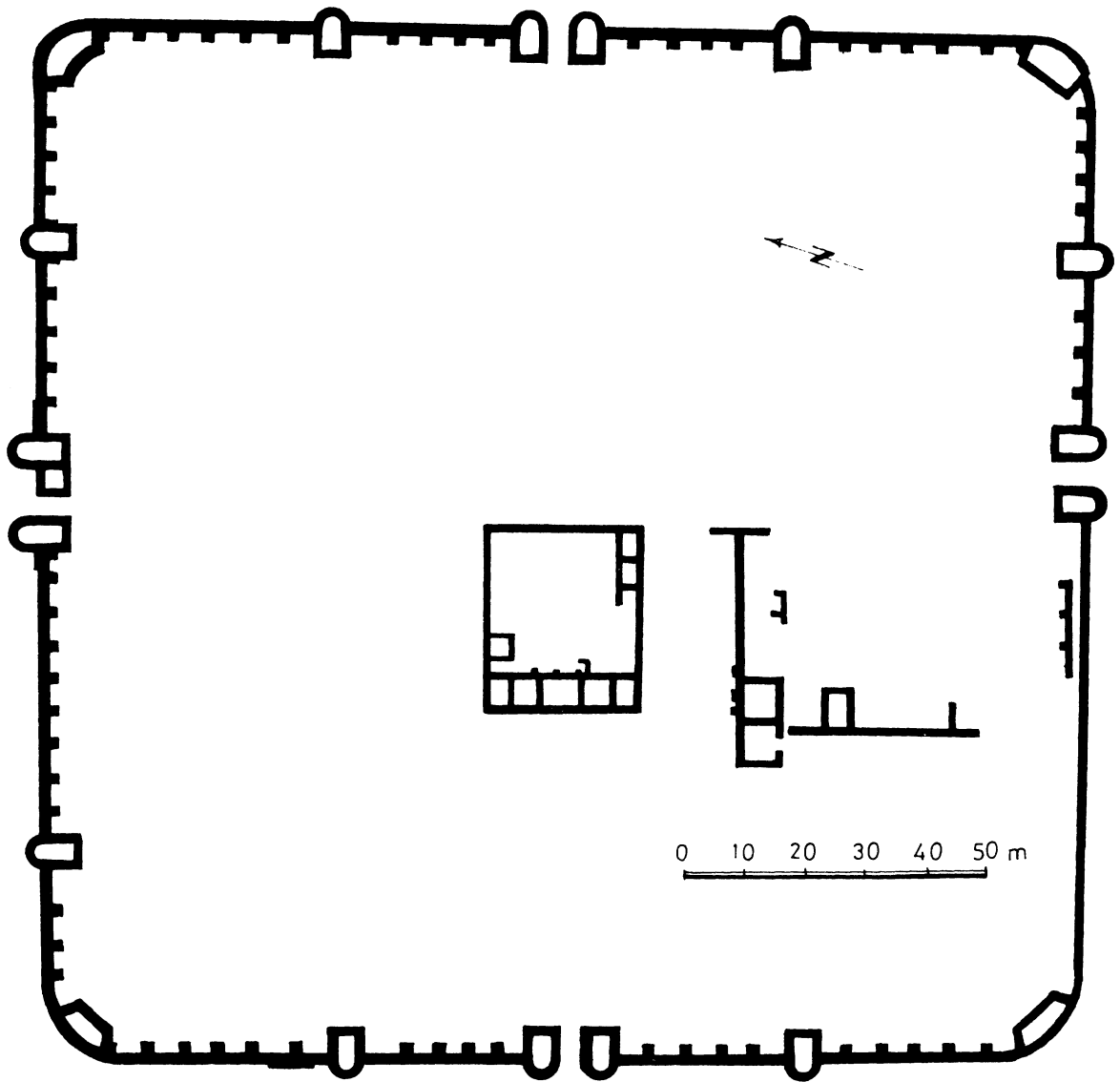


FIG. 10. Plan of fort at Cășei (No. 23).

dug out of the defensive ditch or ditches. Owing to the fact that the nature of the soil varies in different regions, some ramparts could have been built without a timber frame although in other areas, where the subsoil is sand or loess, timber elements do occur, though rarely. There are very few places where the material of a rampart was brought to the site from elsewhere. Sections through the defences of some forts indicate the existence of lines in a darker or lighter colour, lying horizontally, obliquely or vertically to the base of the rampart. In the view of some, these were the remains of a timber frame-work or indicated layers of turves. However, there are only few isolated examples to support this interpretation. The existence of palisades

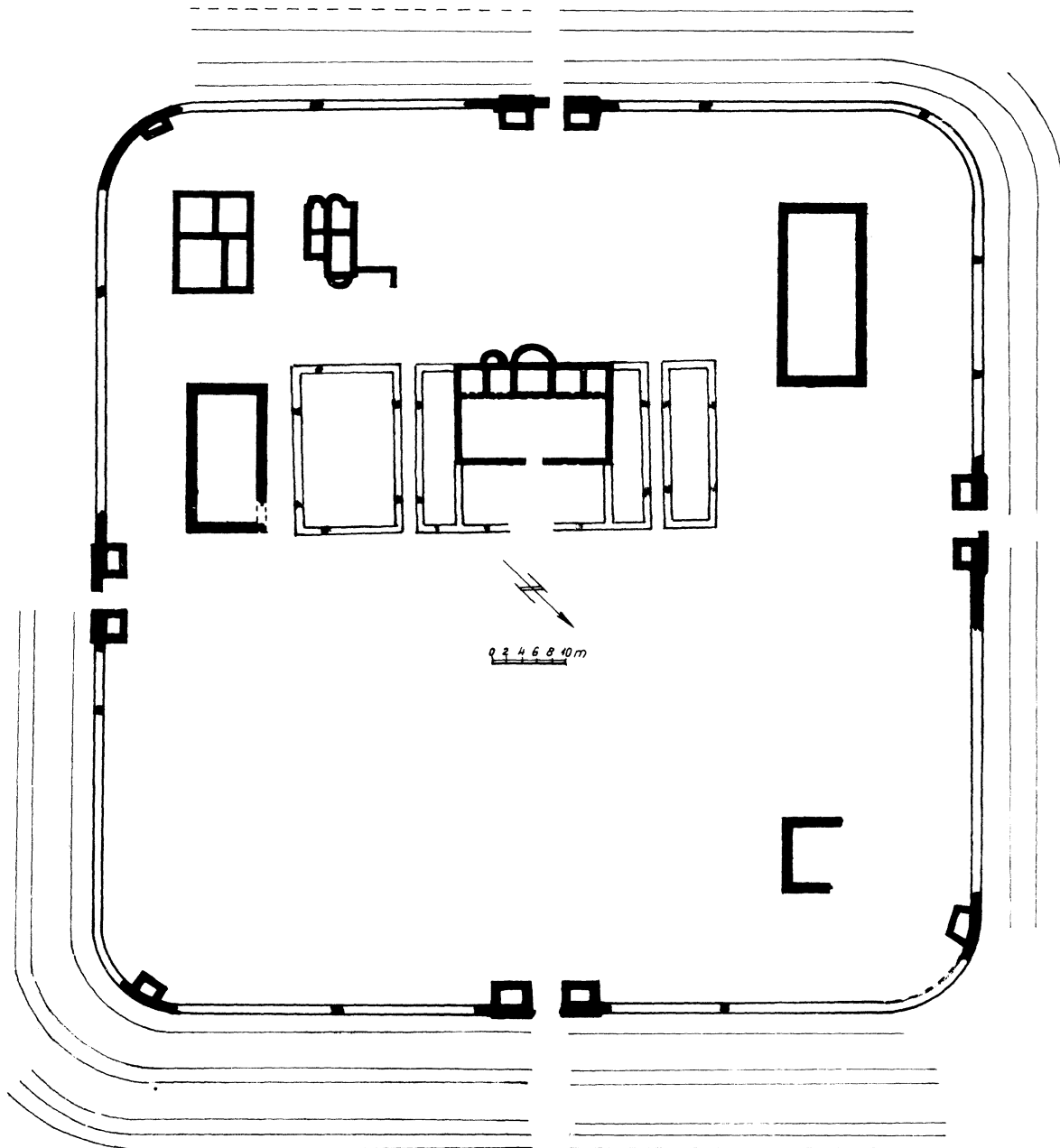


FIG. 11. Plan of fort at Rîșnov (No. 42).

on the top of the ramparts is also so far unproved. We know more about the defensive ditches. Usually two are attested at forts whose earth rampart was strengthened with a stone wall, one smaller, the other larger, proceeding from the rampart outwards. It was assumed that the smaller ditch belonged to the earthen phase, and was filled in when the stone wall was built and the

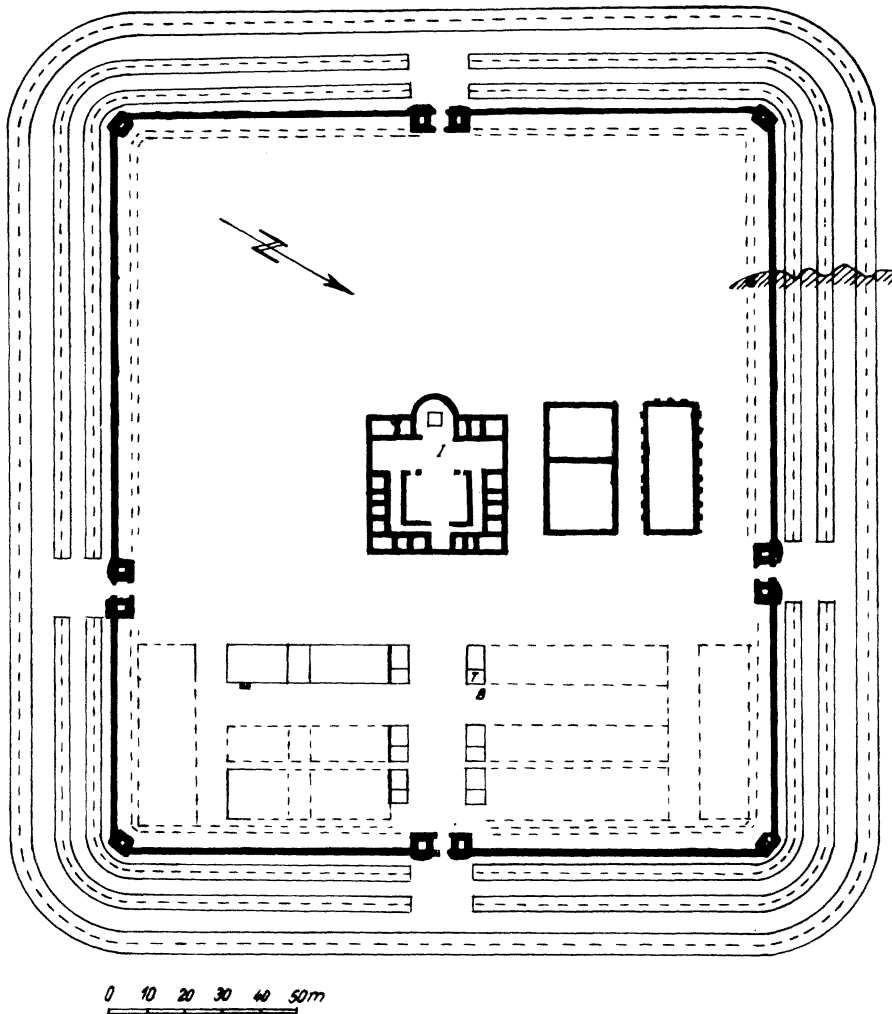


FIG. 12. Plan of fort at Slăveni (No. 68).

accompanying larger ditch was excavated. But it seems that the reverse occurred. The larger ditch belongs to the earth-rampart phase, since the volume of earth which was necessary for building the rampart could have been obtained from it; the smaller ditch appears to have been later work which belonged to the phase with the stone wall. A very interesting state of affairs was observed at Rîșnov (No. 42) where the stone wall was built over the ditch of the earth fort. Here the size of the original ditch could be clearly seen. But this is not the case in the majority of forts, where the ditch may have been enlarged and recut as a result of the building of the defences in stone. Generally, the earth rampart became so compact and solid in the course of time that it was employed as the foundation for the stone wall. There is little evidence for the internal planning and the orientation of the forts with earth defences. The position of gates, streets and barracks are known only at the forts of Bologna and Buciumi.⁴⁶ Most forts remained

⁴⁶ E. Chirilă-N. Gudea-V. Lucăcel-C. Pop, *Castrul roman de la Buciumi* (Cluj 1972), 13 ff.; N. Gudea, *Apulum* 14 (1977).

in use for a long time; some of them until the beginning of the third century. The position and organization of the defensive system represented by the earthen forts were retained during the entire existence of Roman Dacia.

The building of stone walls is believed in Romania to represent a second phase of the forts, and is a change which is attested in the majority of them. Some, of course, were built originally with stone walls, others, as we have noted already, were erected first with earth defences. Some exceptions have been noted above, but this is a problem that future excavations will certainly illuminate. It is considered that some forts were already being built in stone under Trajan, although in our view this hypothesis must be revised in some respects. It is certain that the fortifications in the northern part of the Alutanus line (Sector XI) were built of stone under Hadrian (FIG. 13). A number of other forts (19, 25, 35, 42, 45) (FIG. 11) were probably built in stone under Antonius Pius or his immediate successor, a hypothesis supported less by archaeological evidence than by such common features of their construction as the general plan, the plan of gate-towers, the shape of corner-towers, and other features. The defences of a number of forts were built in stone at the beginning of the third century (21, 22, 26, 29, 35) (FIGS. 8-10, 12).⁴⁷ These forts also have some features in common: the general plan, plan of the gates, plan and arrangement of some internal buildings etc. Some of these features (for example the plans of gates) can be used as criteria for dating. The inscriptions recording or

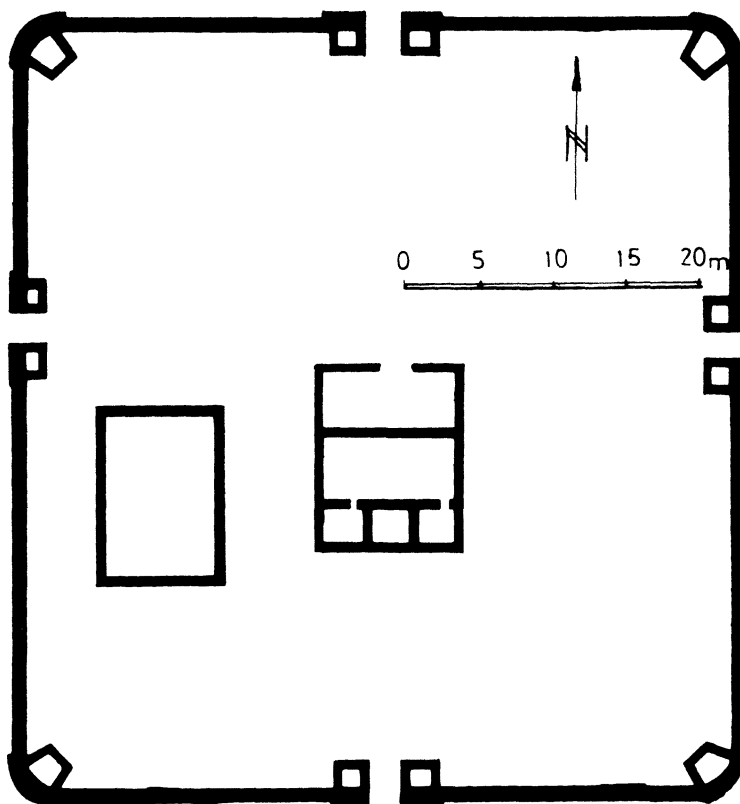


FIG. 13. Plan of fort at Racovița (No. 80).

⁴⁷ M. Macrea, *op. cit.* (note 7), 220, 223; D. Tudor, *op. cit.* (note 12), 259.

implying directly the act of building have normally been found in the stone forts of the early third century.

Generally, the planning and the construction of forts followed the traditional Roman forms. Most are rectangular and the difference between the length of sides is very small, some even being square. One fort has the shape of a parallelogram (23), another that of an irregular rectangle with external towers (41); in another the line of the defences is not rectilinear (35), and there are some forts whose gates are not located symmetrically (35, 42). Both the enclosure-wall and the internal buildings were built of *opus incertum*. Fort walls built originally in stone were constructed in the traditional manner. In forts with an earlier phase of earth defences, the foundations for the stone wall were dug into the earth rampart. The corners of forts are rounded, except in two examples: one where rounded towers protrude from the enclosure (39) and another whose rectangular towers also protrude from the enclosure (42). Usually the corner-towers are of trapezoidal plan. Among some exceptions there are forts without corner towers (35, 23) or with towers at not all corners (22) or forts with corner-towers either rectangular or square (42). Entrances to the corner-towers were at the back (22, 26, 45, 65) or in the side leading directly from the rampart (21). There is a category of forts where the rampart is built to protrude in the fashion of a corner tower, a feature especially common in forts apparently built around the middle of the second century. The rectangular forts have towers on the longer sides (22, 26, 28), usually rectangular or square. The gates were flanked by protruding towers and at forts built in the mid second century had internal buttresses, or in those dated to the early third century semicircular projections and similar buttresses. Forts with the gates flanked by rectangular towers flush with the line of the wall are less certainly dated. Access to the gate-towers was either from the side, from the intervallum road (22) or the rampart (21), or at the rear of the towers (45). The gates of some forts (Nos. 34, 76, 78, 79) do not belong to these principal categories.

The orientation of forts was determined by geography and their tactical role. The *porta praetoria* of some forts faced eastwards in the manner described by Hyginus (21); at others the *porta decumana* faced this way when Hyginus's prescription for the *porta praetoria* was not followed. The orientation of most forts, however, remains unknown. These facts suggest that such theoretical rules were followed only if they coincided with the practical needs determined by local conditions. The plan of the headquarters building (*principia*) is known in only a minority of forts (9, 21, 22, 28, 35, 42, 47, 65, 68). Since these are in forts of different sectors of the *limes*, and since investigation is not in every case complete, it is not yet possible to set out any typology for this building in Dacia.⁴⁸

Little is known of internal planning. At forts which have been more extensively investigated, the internal plans conform to the traditional arrangements, controlled by the layout of the streets. Barracks in the *praetentura* were placed either *per scamna* – parallel to the *via principalis* (21, 22, 68) – or *per strigas* – perpendicular to it (68). The *praetorium* (21, 22, 28) and *horrea* (storehouses) (21, 22, 65, 68, 83) were placed at either side of the headquarters building. Normally, the headquarters lay in the centre of the fort; yet there are some where the buildings are distributed irregularly or at least appear to be so on present evidence (35, 42, 86). Moreover groups of buildings which do not conform to the regular arrangement are encountered in several forts, and these normally date to the third century; the reason is evidently a shortage of space inside the defences (21, 22).⁴⁹ There is very little evidence for the form of barracks. Complete examples are known from only two forts (Nos. 21, 68) and at present even their planning is far from completely understood.

⁴⁸ From the evidence of a relatively small sample of these buildings, some resemblances are evident in those of forts built at the same date, in the northern part of the Olt (Sector XI) and in the north west part (Sector V). For these sectors some consistent typology in *principia* may be recognized.

⁴⁹ See note 46.

Evidence of rebuilding in forts down to the middle of the third century is derived partly from stratigraphy and partly from the changes in plan and the evidence of inscriptions. The rebuilding of one fort (26) is recorded under Decius (249–51), while at another (No. 35) inscriptions of Caracalla were re-used in a wall which blocked a gate.⁵⁰ Similarly an inscription of Severus Alexander (222–35) was re-used in the wall of an internal building (No. 42). In some forts the gates were partly or completely blocked (21, 35, 42) and traces of reconstruction are attested at others.⁵¹

The military situation of the province and the internal stratigraphy of forts suggests that all such building-activities can be dated to the middle of the third century or shortly afterwards. Probably this fortification-work was the consequence of the danger which threatened the Danubian provinces, and more particularly of the changes in the boundary of the south-eastern sectors of the *limes* which took place to the middle of the third century.⁵²

Some general comment may be added on the garrisons of Dacia during the one-and-a-half centuries of its existence. After the conquest, two or even three legions (XIII Gemina, IV Flavia, I Adiutrix) remained in the province; by 118–120 or even earlier, two legions had left for the East and until 167 only one (XIII Gemina) was based in Dacia (FIG. 3). Around 167 Legion V Macedonica was transferred from Moesia Inferior to Dacia Porolissensis⁵³ (FIG. 4). These two legions were to remain until the abandonment of the province under Aurelian. Vexillations from legions based in other provinces were sent to Dacia in times of hostilities: vexillations of legions III Gallica and VII Gemina are known in Dacia Porolissensis and one from legion VII Claudia in Dacia Malvensis.⁵⁴

Most military units of the garrison arrived in Dacia immediately after the conquest, some having participated in the wars of conquest.⁵⁵ A second group arrived in the years between 110 and 120.⁵⁶ It may be possible to determine which of the units which took part in the wars against Dacia, later fought in Trajan's Parthian campaign. Few units were transferred to Dacia after 120;⁵⁷ such arrivals are recorded in Dacia Inferior only. During the second century some units seem to have been created for service in Dacia. The auxiliary garrison of Dacia has been listed several times,⁵⁸ and its composition is generally agreed. However deployment of individual units, their duration of stay and many other details are much disputed.

It has been observed that the Dacian *limes* was defended only by auxiliary units, and that the strength, choice of ethnic origin and tactical capabilities of units were influenced by the role and the position of the forts which they occupied. For example, the north-west sector was defended almost exclusively by units of infantry while combined units with a mounted component (*cohortes equitatae*) were deployed in the north (VI) and east (VII) sectors; units of cavalry and

⁵⁰ M. Macrea, op. cit. (note 8), 443 and also N. Gudea and I. Pop, *Das Römerlager von Rosenau* (Braşov 1970), 65.

⁵¹ M. Macrea, op. cit. (note 8), 443. K. Horedt, 'Interpretări arheologice', *SCIVA* 25 (1974), 555–8 supports the view that the restoration of forts at Comalău and Boroşneu and the building of the vallum 'Honarka' occurred under Gallienus.

⁵² D. Tudor, op. cit. (1958), (note 12), 212; M. Macrea, op. cit. (note 8), 440.

⁵³ E. Ritterling, *RE* xii (1924), 1572–88 (*legio*).

⁵⁴ III Gallica: C. Ţaicoviciu, *RE* xxii, I (1953), 267 (Porolissum), M. Macrea, op. cit. (note 7), 194; VII Gemina: N. Gudea, *SCIVA* 27 (1976), 109–14; VII Claudia: D. Tudor, op. cit. (1978) (note 12), 269, M. Macrea, op. cit. (note 7), 194.

⁵⁵ Diplomas of A.D. 110, *CIL* xvi, 57 and 163 (= *Inscr. Dac. Rom.* i, dipl. II, III).

⁵⁶ Among these may be noted the Ala Siliana, Ala Tungrorum Frontoniana, Coh. I Alpinorum and Coh. II Nervia Brittonum, still recorded in the army of Pannonia Inferior in 110 or 114, *CIL* xvi, 61 and 164.

⁵⁷ Notably some units not attested in other provinces, for example Coh. IIII Hispanorum, Coh. I Aelia Gaesatorum and others.

⁵⁸ Most recently J. Beneš, 'Die römischen Auxiliarformationen im unteren Donau', *Zbornik Prače Filosofiski Fakulty Brnske Univerzitet* 19 (1970), 159–210; I. I. Russu, *SCIV* 23 (1972), 63–77.

archers were placed only in the inner ring of forts; the legionary infantry was stationed at the centre of the system.

Generally, each auxiliary unit occupied its own fort. But there are many exceptions. Some forts contained two (19, 21, 28, 34, 39, 68 etc.) or even three (17, 19, 26) units simultaneously. Conversely, a single unit is attested in two or more forts. Since the evidence for this consists mainly of stamped roofing-tiles (*tegulae*), it should be interpreted simply as evidence that these units participated in the building or even only that materials originating from their workshops were used. The stationing of more than one unit in a single fort may be due to the important role of a particular fort in the system. It must be emphasised that the garrison of several forts and even of whole sectors (I, II, III, XI etc.) remains unknown. The ethnic origins of the units stationed in Dacia were very varied. While based in Dacia, new recruits were drawn not only from the areas of original formation but also from local sources in Dacia.⁵⁹

We have attempted here to present the defensive system in Dacia as it is at present understood. Inevitably much of what is said is as equally likely to be modified as it is to be confirmed by future research. Nevertheless there are some conclusions which may be presented as sufficiently definite to contribute to the military history of Roman Dacia.

The garrisoning of Dacia was conceived and organized primarily for defence, and it performed this function successfully for nearly two centuries. Most of what is said here relates to the *limes*, not only because it formed the most important part of the defensive system, but also because it is the most extensively investigated part of that system. At present many problems continue unresolved; the line of the *limes*, the date of some sectors and many details relating to the forts remain unknown.

Two phases of building can be distinguished in the principal elements of the system; a situation common to the *limes* in other provinces.⁶⁰ The first forts with earth ramparts date generally to the years immediately after the conquest. Some forts, even whole sectors, remained in this form until the end. The forts with earth ramparts lasted generally until around the middle of the second century when the defences of many were rebuilt in stone. Others retained their earth ramparts for over a century, until the beginning of the third century. The conversion from earth to stone defences took place in Dacia at the same time that the change took place in many other provinces.⁶¹ The building in stone seems to have been the result not of military dangers but of the increasing capabilities for such building, the prosperity and the development of the province, and perhaps also an intention to improve the standard of living of the soldiers. The *limes* attained its most complete form at the beginning of the third century, when the building of forts and of other installations in stone appears to have come to an end.

The security of the *limes* in Dacia was not seriously disturbed during the second century or in the first half of the third. A real threat appeared only in the middle of the third century when the *limes transalutanus* (Sector X) and even both the Sectors X and XI were broken through.⁶² Because of the general danger, forts of the whole *limes* were repaired, restored and strengthened. This activity was not isolated: a multiplicity of restoration-work on the *limes* is attested both epigraphically and archaeologically in the middle of the third century. Otherwise the army in the Dacian provinces was both powerful and well-organized tactically, with the majority of units stationed permanently in the province. Tranquillity on the Dacian boundaries even permitted the sending of some legionary and auxiliary detachments to other fronts during the second and third centuries.

⁵⁹ C. Daicoviciu, *AISC* iii (1936-40), 200 ff.; D. Protase, *Problema continuității în lumina arheologiei și numismaticii* (București 1966). For new finds, N. Gudea, *SCIV* 21 (1970), 299-311.

⁶⁰ G. Forni, *op. cit.* (note 10), 1094 ff.

⁶¹ G. Forni, *op. cit.* (note 10), 1103-32; 1139-50; 1151-63; 1181-95; 1196.

⁶² M. Macrea, *op. cit.* (note 8), 29-106; 436-45.

The forts and the civil settlements were active centres of production and exhibit a flourishing religious, economic and social life, remaining permanent focuses of romanization. They played an immense role in the assimilation of the Dacians to Roman civilization.

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APPENDIX

ROMAN FORTIFICATIONS IN DACIA (Roman identifications in parentheses)

A South-west Dacia

Sector I

1. Bulci
2. Aradul Nou
3. Sînicolaul Mare
4. Cenad
5. Szeged (Partiscum)?

Sector II

(no forts identified)

Sector III

6. Banatska Palanka ?
7. Duplijaja
8. Grebenac
9. Vărădia (Arcidava)
10. Vršac
11. Surduc (Centum Putei)
12. Berzovia (Berzobis)
13. Fîrliug (Aizizis)

Sector IV

14. Orşova (Dierna)
15. Mehadia (Praetorium)
16. Teregova (Ad Pannonios)
17. Jupa (Tibiscum)
18. Zăvoi

B The Transylvanian Plateau

Sector V

19. Veşel (Micia)
20. Abrud
21. Bologa (Resculum?)
22. Buciumi
23. Romănaş (Largiana)
24. Romita (Certie)

25. Moigrad-Citera (Porolisum)
26. Moigrad-Pomet (Porolisum)

Sector VI

27. Tihău
28. Căşeu (Samum?)
29. Ilişua
30. Livezile
31. Orheiul Bistriţei

Sector VII

32. Brîncoveneşti
33. Călugăreni
34. Sărăţeni
35. Inlăceni
36. Odorheiul Secuiesc
37. Sînpaul
38. Olteni

Sector VIII

39. Breţcu (Angustia)
40. Boroşneul Mare
41. Comalău
42. Rîşnov (Cumidava)
43. Hoghiz
44. Cincşor
45. Feldioara
46. Boiţa (Caput Stenarum)

C South-east Dacia

Sector IX

47. Drajna de Sus
48. Mălăieşti
49. Tîrşor
50. Pietroasele
-
-

Sector X Transalutanus

51. Flămînda
52. Putineiu
53. Băneasa I
54. Băneasa II
55. Roşiorii de Vede
56. Gresia
57. Ghioca
58. Urluieni I
59. Urluieni II
60. Filfani-Izbăşeşti
61. Săpata de Jos I
62. Săpata de Jos II
63. Albota
64. Purcăreni
65. Cîmpulung Muscel
- 65a. Rucăr

Sector XI

66. Islaz-Racoviţa
67. Tia Mare
68. Slăveni
69. Enoşeşti (Acidava)
70. Momoteşti (Rusidava)
71. Ioneştii Govorii
72. Stolniceni (Buridava)
73. Sîmbotin (Castra Traiana)
74. Rădăcineşti
75. Jiblea

76. Bivolari (Arutela)
77. Perişani
78. Titeşti
79. Copăcenii
80. Racoviţa (Praetorium)
81. Riul Vadului
82. Ciîneni

Sector XII

83. Răcari
84. Craiova (Pelendava)
85. Cătunele
86. Bumbeşti-Vîrtop

D Central defence

87. Alba Julia (Apulum)
88. Turda (Potaissa)

E Intermediate defence circuit

89. Cigmău
90. Gilău
91. Zutor (Optatiana)
92. Gherla
93. Cristeşti
94. Sighişoara
95. Orăştioara de sus
96. Războieni