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The Drive for Modernisation in Inter-War Eastern Europe: Changes in Rurality in the Carpathian Mountains 1918-1945

David Turnock[1]

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Abstract

The history of settlement in the Carpathians in modern times has combined the growth of urban centres on the margins and major valleys with dispersed rural settlement which has produced (for example) the distinctive 'kopanitsa' landscape of Slovakia. It has also taken place in the context of imperialism with the Habsburg Empire as the dominant political force. This paper concentrates on the relatively short inter-war period witnessing the emergence of nation states in the Carpathian-Danubian region and a growing concern for industrial development for reasons of both employment and state security; a priority that has also had major implications for infrastructure in order to mobilise both the population and the natural resources in the context of newly-constituted national territories that required effective unification through new roads and railways across mountain terrain. The task was always going to be formidable in the context of a short period of two decades (complicated by the great economic depression) but grappling with the challenges provides a fascinating context for a discourse in historical geography. The paper looks at the building of new nation states before considering economic issues influenced by a sense of demographic 'crisis' as rapid population growth not only compensated for the losses of the First World War but imposed heavy pressure on agricultural land that could now be increased only marginally in the mountain region. The results are considered in broad terms through population trends and a detailed examination of urbanisation with a focus on the period 1930-1960 which provides the best approximation in the light of available census data. There is a focus on industrial development in the mountains – with particular emphasis on mining and wood processing, including comment on local transport and energy provision in challenging terrain. And the paper also considers contemporary conceptions for a planned economy including the role of eugenics in Romania as a vehicle for the enrichment of rural culture. Finally, a survey of the Second World War years provides a link forward towards the totalitarian era of state control.

Key Words: Autarky, Carpathians, Economic Development, Inter-War Period, Modernisation, Rural Planning

Introduction

This paper is part of a series of studies that review the historical geography of the Carpathians and follows earlier work dealing with Prehistory/Medieval and Modern periods (Turnock 2003; 2007). It has emerged that mountains tend to be marginal on account of their limited resource base and in much of Europe their narrow breadth in relation to surrounding lowlands tends to rule out major cultural and geopolitical regions rooted in the high ground. But the massive nature of the Carpathians, combined with their extreme peripherality (notwithstanding the urban networks that developed through the stimulus of Medieval trade routes) spawned a succession of rural civilisations exemplified in Prehistory by the Dacians; in the Medieval period by Wallachian shepherds and in the nineteenth century by subsistence farmers who completed the 'kopanitsa' settlement of the Valašsko area of Moravia and the Gornoviţa surface of the Romanian Carpathians at altitudes of 1,200-1,300m with explosions of hamlet settlement on a family basis known in Romania as 'proces de roirii'. However while the urban network has been distinctly sparse in the south, away from the Transylvanian Plateau with its German 'Siebenbürgen', urbanisation accelerated in the railway age and became the inevitable basis for economic progress after the First World War.

Carpathians and States

Although not highly industrialised, the Carpathians became quite crucial to the Habsburg system of defence in

[1] Department of Geography, University of Leicester, University Road, Leicester, LE1 7RH, UK;
email: dt8@le.ac.uk

the nineteenth century since the entire mountain system lay within the limits of the empire at the time apart from the southeast flank controlled by Romania after it gained its independence from the Ottoman Empire in 1878; while for Hungarians, who effectively went into partnership with the Germans of Austria after 1867, the crests of the Carpathians marked the eastern limits of their national territory and railway building involved a series of radial routes from Budapest fanning out across the mountains where a military frontier had already been consolidated by local regiments. This infrastructure, providing a powerful stimulus for forest exploitation, complemented the far-flung informal networks of peasant farmers and pastoralists to project two contrasting sides to modernity in the region. But there were also ethnic tensions as the Magyars sought to create a nation state in an ethically-diverse region for although they were unquestionably the largest single ethnic group they conspicuously failed to gain an overall majority. And as the political tensions became unbridgeable – since concessions to the non-Magyar groups always fell short of autonomy – the allied success in the First World War paved the way for a policy of self-determination which comprehensively dismantled the Habsburg Empire and divided the Carpathian territory between Czechoslovakia, Poland and Romania with only token interests for Austria and Hungary (Figure 1). Of course this was disappointing for smaller groups like the Hutsul (Lemko/Rusyn) people for only belatedly (in 1940) did they gain a measure of autonomy

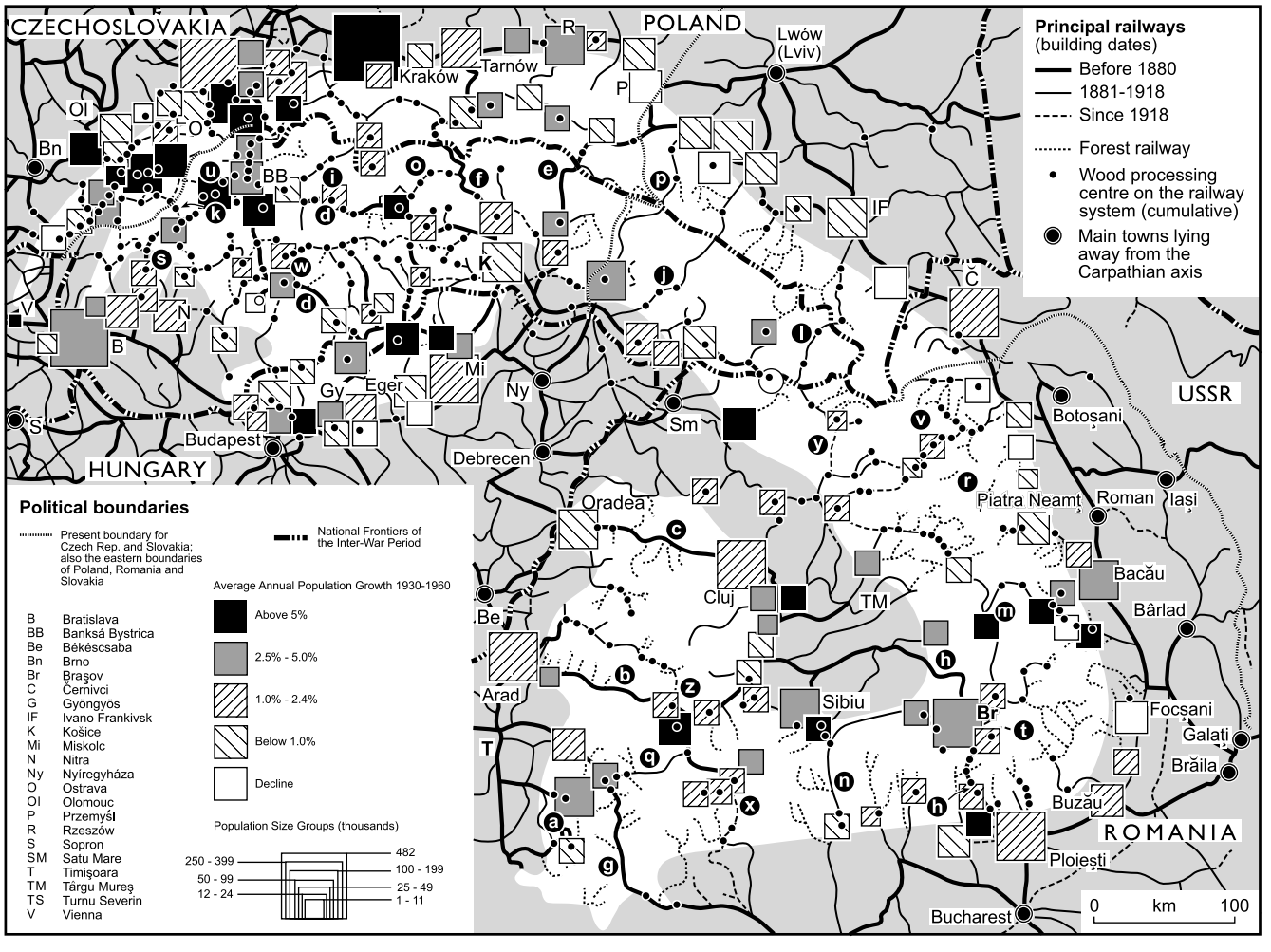

Figure 1 Urban development 1930-1960 in the context of railway construction and the wood processing industry
Letters refer to Trans-Carpathian railway routes summarised as follows with summit level stated (* indicates a tunnel): **a.** 1863: Buziaş-Anina (559m*); **b.** 1868: Arad-Alba Iulia (c.200m); **c.** 1870: Oradea-Cluj (c.500m); **d.** 1871: Bohumin-Košice (553m* at the Jablunkov Pass); **e.** 1872: L'viv-Košice (640m*); **f.** 1876 Tarnów-Košice (c.500m); **g.** 1878: Caransebeş-Orşova (515m); **h.** 1879: Sighişoara-Ploieşti (1040m at Predeal); **i.** 1884: Čadca-Żywiec (680m); **j.** 1887: L'viv-Nyíregyháza (1041m*); **k.** 1888: Brno-Trenčin (c.300m); **l.** 1888: Ivano Frankivs'k-Sighetul Marmaţiei (c.900m*); **m.** 1899: Adjud-Ciceu (1025m*); **n.** 1901: Sibiu-Râmnicu Vâlcea (400m); **o.** 1904: Nowy Targ-Kral'ovany (768m); **p.** 1905: L'viv-Nyíregyháza via Turka (859m); **q.** 1908: Subcetate-Caransebeş (892m) extended beyond Caransebeş to reach Reşiţa in 1938; **r.** 1915: Vatra Dornei-Tiha Bârgăului (c.1100m) **s.** 1929: Veselí nad Moravou-Nové Mesto nad Váhom via Velká nad Veličkou on the Teplica-Myjava watershed (400m* at Myjava); **t.** 1931: Braşov-Întorsura Buzăului (700m* at the Tărlung-Buzău watershed). This was meant to be the start of a line between Braşov and Buzău which had to be discontinued due to unstable terrain. It was one of several projects to overcome limited capacity at Predeal; **u.** 1937:Ostrava-Púchov via Vsetín (528m in the Lysky valley); **v.** 1938: Năsăud-Vatra Dornei via Ilva Mică (874m at the Grădiniţa Pass) superseding the Vatra Dornei-Tiha Bârgăului (see r above); **w.** 1939 Prievidza-Košice via Banská Bystrica. The whole project incorporated Prievidza-Handlová (1913) followed by sections to Štubňa (1931); Harmanec (1939), Banská Bystrica (1913), Brezno nad Hronom (1895), Červina Skála (1903), Mníšek n.Hnilcom, reaching 900m* at the Hron/Hnilec watershed (1936), Margečany (1884), Kysak (1872) and Košice (1870); **x.** 1948: Simeria-Târgu Jiu (c.700m); **y.** 1948 Salva-Vişeu (682m*); **z.** 1979: Brad-Deva (c.350m*)

within Czechoslovakia. And even this arrangement for Ruthenia did not address the wider problem of separation between Czechoslovak and Polish territory – not to mention rival Russophile and Ukrainophile orientations that threatened to submerge their own Slavic culture. Magocsi (1993) sees a process of assimilation for Rusyns in Hungary in the nineteenth century after national revival in 1848 initially sparked abortive proposals for an autonomous territory (although the Habsburg authorities were happy to support a Rusyn vernacular as a distinct element within an East Slav group; diluting the idea of the 'common Russian identity' embraced by Pan-Slavism). These tensions continued after World War Two although the formation of a Ukrainian SSR and annexation of 'Subcarpathian Rus' into Ukraine – plus 'Ukrainianisation' in communist Czechoslovakia and Romania, as well as Poland where there was the additional trauma of resettlement (Snyder 1999) – has strengthened the Ukrainophile orientation over the Russophile, with the latter effectively eclipsed.

The Hungarian, and more widely Habsburg, administration provided for coordinated development across the Carpathians (all the more so in view of Romania's secret treaty with both the Habsburg Empire and Germany in 1883 – renwed in 1902 and again in 1913). Thus in 1918 the Hungarians opposed the ethnic principle with their plea for integrated resource management and flood control by retention of the status quo. This was, of course, unsustainable but it raised an important issue and one that was hardly addressed by the Little Entente forged between Czechoslovakia, Romania and Yugoslavia to oppose Hungarian revision of the Trianon Treaty. But when faced with the threat of partition in Transylvania – eventually carried out through Hitler's arbitration in 1940 - Romania was able to emulate Hungarian advocacy of natural frontiers with claims of a geographical framework provided by the entire Carpathian zone south of Ruthenia (Bratescu 1943 p.99) - where Romanians might claim the right to 'hold the fort' - as well as the Danubian lowland including a broad strip of river and floodplain. In the same publication Ion Conea (Ibid p.123) was able to find inspiration in Strabo to justify Romanian territory as a natural region ('regiune naturală precisă) and 'o forță eternal pentru putere în timp și în spațiu'.

It is important to appreciate the significance of the change in government since Hungary's minorities had faced considerable discrimination under their former masters, whereas after 1918 it was the Hungarians who were advocating autonomy (Wojatsek 1981). Now, quite apart from the land reform (which expropriated all the great landowners) there were changes in local government in mixed communities that enabled Romanians to build their churches in village centres where previously only Hungarian churches had been tolerated e.g. at Corbu (Harghita) where a new Uniate church appeared (replacing a small wooden building on the edge of the village) beside the established Hungarian church; though some of these new buildings were destroyed when the Hungarians regained control temporarily in 1940. Historic grievances accumulated through land disputes could also be addessed. Thus at Sadu near Sibiu where Romanian lands had been coveted by the Saxons (Germans) in Cisnădie (Heltau) – whose water resources became insuffient to support the large community with its thriving textile industry – we find that although the Romanians were released from a state of servitude in 1799, the Saxon 'Magistrat' in Sibiu imposed a boundary between the two settlements that was very much in favour of the Saxons (who had encroached on the Sadu lands through V.Tocilelor and V.Vioară and controlled both the Lăzăturile territory and the clearing between Valea Tocilelor and the forest of Tufari). These arrangements were now revised in two stages through land reform: first in 1923 and again in 1945 when the brewery lands were allocated. Historically the Saxons also had control of the Sadu river (first awarded in 1646) and although they allowed the Romanians to build fulling and cereal mills - some distance upstream from their own mills (built in 1646 and again in 1802) and their eighteenth century brewery - rents were payable (Lotreanu 1988). Meanwhile in Corbu there was a long-running dispute with Jolotca village (Ditrău commune) not fully resolved until after the Second World War (Muică & Turnock 2002 p.32)

Agriculture and the Problem of Economic Diversification

The main theme considered in this paper is the sense of 'crisis' which emerged during the inter-war years through population growth that initially compensated for losses during the First World War before placing increasing pressure on agricultural land that could be increased only marginally in the montains through further cutting of the forests and some schemes of land reclamation (Lichtenberger 1978). Improvements in public health also had a demographic impact at a time when large-scale emigration was no longer possible, while advocacy of one-child families (common in Hungary as a means of reversing land fragmentation) could not seriously be advocated in states that wished to maintain a high rate of reproduction for strategic reasons and where the tradition of children as a blessing for smallholders dependent on family labour remained strong. Indeed it will be shown that 'eugenics' developed as a significant 'improving movement' in Romania in the 1930s to safeguard and strengthen the country's demographic resources. The independent smallholding provided a measure of security but it was always a mixed blessing in the sense that 'round the clock' work could only deliver a basic subsistence given the low prices for agricultural commodities (with a tendency towards a progressive 'price scissors' as inputs and other manufactured goods became relatively more expensive). Although yields were relatively high output per person was low. In the mountains there was little flexibility over farming systems and the only escape lay in resettlement facilitated by the land reform of 1923. So there had to be priority for industrialisation and urbanisation for reasons of national defence as well as higher living standards: freedom from the necessity of growing subsistence crops was only a blessing when labour could be redeployed in manufacturing and services.

The contemporary problem of the Carpathians, which started to be felt in the nineteenth century, lay in the lack of sufficient non-agricultural employment for agriculture to switch more comprehensively from subsistence to spe-

cialised livestock rearing farms. Instead there was continued subdivision and fragmentation of farms in some areas with subsistence farming for wheat and rye, supported by heavy manuring. Despite the safety valve provided by the railway age, the population of many Carpathian areas continued to grow quite strongly, especially in Moldavia where urban-industrial forces were relatively light. Subdivision heightened the problem of minifundia, much discussed in the 1930s and 1940s when rural studies predicted a looming crisis for the villages like Corbu in the Eastern Carpathians that seemed unable to employ a growing population (Turnock 1990). National interests were now bringing some acceleration in industrial development since each state now required its own manufacturing base for strategic industries; yet over much of the region the overriding consideration was "the vicious circle of population pressure, excessive reliance on under-productive agriculture and low income" (Radice 1985 p.31) arising from the fact that nearly a third of the total agrarian population was 'surplus' and could be withdrawn without production being affected. The situation was aggravated by restrictions on immigration into the US imposed in 1922; and although migration to the towns was a possibility - for the women especially emancipation was sufficient to justify the phrase 'Stadtluft macht frei' - there was never enough opportunity to relieve land hunger.

The situation has been carefully examined for Romania with respect to a Transylvanian village (Bințințiți, now Aurel Vlaicu and part of the small spa town of Geoagiu) where small farms absorbed much of what they produced, so the surplus available for export was small; while the lurch towards autarky and import substitution - in order to maximise the growth of industry – meant that agriculture encountered more fiscal barriers in its search for exports. It was not just a case of the state neglecting agriculture but "actively underdeveloping it" (Verdery 1983 p.356) in preference for industrial growth because of "nationalistic designs to diversify the economy using protectionist methods in order to avoid what were considered the detrimental effects of monocrop export dependency" (Ibid p.356) evident before 1914. Despite the stimulus of urban markets which provided money for limited modernisation (e.g. iron ploughs), peasants were unable to consolidate and modernise due to "their inability to earn enough in an agriculture whose prices that state depressed to support industry" (Ibid p.330). They also faced high taxes while, as proprietors, they could no longer cut corners by 'covering weeds with dirt' as they had done when labouring on Hungarian estates before the war. The depression served to deepen the malaise since the Romanian peasantry incurred the largest personal debt among the Carpathian countries given the lack of government credit. Indeed, "the cycle of land circulation, low credit and high debt was on its way to proletarianising many peasants when the depression struck" (Ibid p.331). A moratorium then checked bankruptcy, but at huge cost to the banks as well as the state which had to retreat from a policy of encouraging more viable farms. Money owed could not easily be recovered since the local 'popular' banks reduced their loans just at the time when Bulgarian cooperative credit associations were increasing their assets by a quarter (1932-4). But a large destitute population unable to find work in industry would have been a greater risk and so the peasantry was not proletarianised on this occasion. Of course factory work was a great boon where it was available while the cattle exports to Czechoslovakia were relatively buoyant and so enabled peasants to "utilise every corner of their ecological niche and survive on it" (Ibid p.314). Interestingly the counterproductive nature of land reform - whereby proprietorship was compromised by peasant indebtedness - was not without historical precedent. In the 1930s Romanian peasants were hard-pressed through taxation imposed by "a Romanian state in partial collusion with merchants" (Ibid p.341) as they has been in the 19th century by the Magyar state, the nobility and the merchants and even earlier by landlords and Habsburg tax collectors.

Population pressure was maintained. Although demographic trends are complicated by the losses of two world wars (and it is not proposed to make elaborate investigations) figures provided by Halász et al. (1971) show an annual growth in the then urban population of 1.95% during 1930-1960 with a faster rate on the inner side of the mountain arc in Czechoslovakia and Hungary and a lower one on the outer side that lay predominantly in Polish and Romanian territory (Figure 1; Table 1). Meanwhile the longer term trend in Romania, based on the present administrative units (including the urban network for 1900) for which census data from 1857, 1880, 1910-1912 and 1966 has been recalculated (Rotariu et al. 1997a; 1997b), is summarised in Table 2. There was some long-term decline in extremely marginal areas without prospects of economic diversification e.g. areas of hamlet settlement dependent almost entirely on pastoralism; although even the 'Pădureni' living in the mountains above the Hațeg Depression could take seasonal work on the croplands of the Mureș valley where the 'Highlanders' became well-known to the villagers of Bințințiți (Vuia 1926). The table shows that the Carpathian population increased from 4.13 to 5.81mln between 1910/1912 and 1966 with much faster urban growth – 2.35% per annum - on the dynamic inner flank (reaching +4.14 in Brașov, +3.47 in Cluj and +3.22 in Hunedoara) compared with the outer flank's 1.54%. Meanwhile rural trends saw the positions reversed (0.08% and 0.30% respectively) even though the very high rural growth in Moldavia (+0.72% per annum) was balanced by decline in Banat-Crișana-Maramureș: the only area to show an absolute decline (-0.06% per annum – but -0.46 in Arad County, -0.31 in Caraș-Severin and -0.30 in Timiș – using the present county system).

The east-west demographic gradient was very clear during the last century with the high overall rate in the Outer East (+0.99%: +1.94% urban and +0.72% rural) falling progressively from the Inner East (+0.86%: +3.24, reflecting the explosive growth of Brașov, and +0.26); to the Inner West (+0.84%: +2.33 and -0.08, due to the demographic stagnation of the Apuseni); and Outer West (+0.32%: +1.22 and -0.06). But overall there was a significantly-increasing demographic pressure, even if it was not on the scale of the nineteenth century (1857-1910) for the Inner Carpathians when the rural growth was +0.52% per annum (while the urban growth was slower at +1.37%). The result was an extremely high level of dependence on agriculture; well-illustrated by

Table 1 *Growth of Carpathian towns 1930-1960 (1930 network).*

Country	Section	Number of Towns	Population th		Annual Growth %
			1930	1960	
Czechoslovakia	Inner	23	240.8	441.0	+2.77
	Outer	30	734.3	1150.7	+1.89
	Total	53	975.1	1591.7	+2.11
Hungary	Inner	3	35.9	78.1	+3.92
	Outer	14	260.7	388.4	+1.03
	Total	17	296.6	466.5	+1.91
Poland	Inner	8	108.2	157.0	+1.50
	Outer	22	774.7	1187.1	+1.77
	Total	30	882.9	1344.1	+1.74
Romania	Inner	22	292.6	500.0	+1.66
	Outer	66	1022.7	1463.4	+2.73
	Total	88	1315.3	1963.4	+1.89
Carpathians	Inner	56	677.5	1176.1	+2.69
	Outer	132	2792.4	4189.6	+1.75
	Total	188	3469.9	5365.7	+1.95

Source: L.Halasz et al. 1971, p.214

the Apuseni Mountains of western Romania where Ciomac & Popa-Necşa (1936, pp.204-9) quote a total population of 286.5 thousands of which 205.7 thousand was active: a very high proportion since all able-bodied people were occupied in subsistence farming (Plate 1). Employment in agriculture was 163.3 thousand (79.4%) with 47.7 thousand working on a daily basis. There was some easing of pressure by land settlement in the lowlands under the land reform programme e.g. 1,886 families from the Apuseni were settled on small farms along the new frontier with Hungary. People from Sibiu were allocated land at Bazoşu Nou (near Remetea Mare) in the Banat east of Timişoara; contributing to an increasing Romanian element on the Tisa plain. And peasants in the mountains of Bucovina who had previously worked seasonally on large farms in Moldavia could now leave permanently for the lowlands (Tufescu 1941).

Plate 1 The Western Carpathians (Apuseni): Arieşeni in the Arieş valley – showing the extension of agriculture on the valley slopes extending on to the high surface where much of commune's population lived in hamlets. This remote area has since been opened up by modernisation of the road to the Criş valley via the Vârtop pass and the development of winter sports

The period is however well-documented by research examining the rural economy of the Carpathians, partly with a view to clarifying historical trends for reasons of national security in validating territorial claims. Pastoral traditions were well documented by area studies such as Vuia's (1926) work on the Haţeg Depression which he got know well during his first appointment as a school teacher from 1910 (Turnock 1991). Transhumance was central to many communities taking advantage of high mountain grazings in summer and the relatively mild lowland of the Danube valley and Black Sea coast in winter (Dragomir 1925; 1938) with the wandering instinct of Medieval 'Wallachian shepherds' (a plausible theory for the origin of the Rusyn population) perpetuated into the early twentieth century by the itineraries of shepherds in Mărginimea Sibiului and the Braşov Depression. A focus on the high ground gave a 'central place' function to some high plateau surfaces that were used as assembly grounds where communities from adjacent valleys would assemble for fairs and festivals: the tradition of 'nedei pastori' (Conea 1936) where Oltenian and Transylvanian peoples would make contact on the Godeanu, Păring and Retezat mountains. Further east Penteleu provided 'târg de două ţări' (for textiles, ceramics, livestock, cheese, fruit and brandy) involving the people from Braşov/Covasna on the western side and Râmnicu Sărat/Vrancea to the east; while Morariu's (1937) work on the Rodna furnished additional examples. The 'plai' phenomenon was an important accessory with gently-sloping surfaces (the typical territories of individual communities) like those of Novaci or Polovragi connecting grazings, woodlands and alpine meadows: tracks and pathways would connect the different sections – hence the 'plai' trackways ('drumuri de plai') with the word 'plai' sometimes applied to the road or trackway itself. Settlements were typically dispersed with consolidation in depressions a modern development (Vuia 1937). Further contributions came from Opreanu (1942) on the terracing of mountain slopes for cropping (especially

Table 2: ***Population Trends in the Romanian Carpathians for Period Two (1910-1966) based on the 1992 urban network and the present county system. Comparable data is also supplied for Period One (1857-1910) for Banat-Crişana-Maramureş and Transylvania***

Period	Initial Population			Absolute Growth			Annual Rate Percent		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
OUTER-CARPATHIANS: BANAT-CRIŞANA-MARAMUREŞ									
Arad County									
One*	25936	146766	172702	6791	40877	47668	+0.87	+0.93	+0.92
Two	32727	187643	220370	1479	-47904	-46425	+0.08	-0.46	-0.38
Bihor County									
One*	55134	130909	186043	40036	68398	108434	+2.42	+1.74	+1.94
Two	95170	199307	294477	79395	23669	103064	+1.49	+0.21	+0.62
Caraş-Severin County									
One*	60324	192290	252614	14890	32754	47644	+1.07	+0.57	+0.63
Two	75214	225044	300258	74830	-38459	36371	+1.78	-0.31	0.22
Maramureş County									
One*	70130	107913	178043	54758	34308	89066	+2.60	+1.06	+1.67
Two	121888	142221	267109	66724	32221	98945	+0.95	+0.40	+0.66
Satu Mare County									
One*	2771	24585	27356	1446	8535	9981	+1.74	+1.16	+1.22
Two	4217	33120	37337	5094	14993	20087	+2.16	+0.81	+0.96
Timiş County									
One*	12389	52302	64691	8573	14888	23461	+2.31	+0.95	+1.21
Two	20962	67190	88152	14402	-11188	+3214	+1.23	-0.30	+0.07
Total									
One*	226684	654765	881449	126494	199760	326254	+1.86	+1.02	+1.12
Two	353178	854525	1207703	241924	-26668	215256	+1.22	-0.06	+0.32
OUTER CARPATHIANS: MOLDAVIA-BUCOVINA-BUZAU									
Bacău County									
Two	35828	92052	127880	76225	46471	122696	+3.80	+0.90	+1.71
Buzău County									
Two	7238	79670	86908	3618	13258	16876	+0.89	+0.30	+0.35
Neamț County									
Two	38232	94889	133121	42276	58529	100805	+1.97	+1.10	+1.35
Suceava County									
Two	54189	164874	219063	24775	50360	75135	+0.82	+0.55	+0.61
Vrancea County									
Two		47292	47292		24102	24102		+0.91	+0.91
Total									
Two	135487	478777	614264	146894	192720	339614	+1.94	+0.72	+0.99
OUTER CARPATHIANS: MUNTENIA-OLTENIA									
Argeş County									
Two	21796	84289	106085	26373	44574	70947	+2.24	+0.98	+1.24
Dâmbovița County									
Two	12504	34495	46999	13886	12667	26553	+2.06	+0.68	+1.05
Gorj County									
Two	35385	61000	96385	27702	5169	32871	+1.45	+0.16	+0.63
Mehedinți County									
Two	43494	27117	70611	30966	198	31164	+1.32	+0.01	+0.82
Prahova County									
Two	48479	85737	134216	52359	23672	76031	+2.00	+0.51	+1.05

Period	Initial Population			Absolute Growth			Annual Rate Percent		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Vâlcea County									
Two	33165	66679	99844	28105	19991	48096	+1.57	+0.55	+0.89
Total									
Two	194823	359317	554140	179391	106271	285662	+1.71	+0.55	+0.95
INNER CARPATHIANS: TRANSYLVANIA-EAST									
Bistrița-Năsăud County									
One	14563	59946	74509	10368	33270	43638	+1.34	+1.05	+1.11
Two	24931	93216	118147	13901	33745	47646	+1.00	+0.65	+0.72
Braşov County									
One	65091	122610	187701	16896	15059	31955	+0.32	+0.23	+0.04
Two	81987	137669	219656	190238	18385	208623	+4.14	+0.24	+1.70
Covasna County									
One	24764	100461	125225	12556	3774	16330	+0.96	+0.07	+0.25
Two	37320	104235	141555	28511	6790	35301	+1.36	+0.12	+0.45
Harghita County									
One	28908	114214	143122	22074	42623	64697	+1.44	+0.70	+0.85
Two	50982	156837	207819	30308	12478	42786	+1.06	+0.14	+0.37
Mureş County									
One	10049	36606	46655	3903	19105	23008	+0.73	+0.98	+0.93
Two	13952	55711	69663	18655	9629	28284	+2.39	+0.03	+0.72
Total									
One	143375	433837	577212	65797	113831	179628	+0.87	+0.50	+0.59
Two	209172	547668	756840	281613	81027	362640	+3.24	+0.26	+0.86
INNER CARPATHIANS: TRANSYLVANIA-WEST									
Alba County									
One	56778	133994	190772	29603	37685	67288	+0.98	+0.53	+0.67
Two	86381	171679	258060	34792	-4356	30436	+0.72	-0.05	+0.21
Cluj County									
One	37418	74841	112259	52028	36978	89006	+2.62	+0.93	+1.50
Two	89446	111819	201265	173804	9868	183672	+3.47	+0.16	+1.63
Hunedoara County									
One	47247	171234	218481	62569	33519	96088	+2.50	+0.37	+0.83
Two	109816	204753	314569	197907	-37974	159933	+3.22	-0.33	+0.91
Sălaj County									
One	10258	45104	55362	6504	21943	28447	+1.20	+0.92	+0.97
Two	16762	67047	83809	10706	9307	20013	+1.14	+0.25	+0.43
Sibiu County									
One	47943	53934	101877	33266	8353	41619	+1.31	+0.29	+0.77
Two	81209	62287	143496	82302	-4591	77711	+1.81	-0.13	+0.97
Total									
One	199644	479107	678751	183970	138478	322448	+1.74	+0.55	+0.90
Two	383614	617585	1001199	499511	-27746	471765	+2.33	-0.08	+0.84
OUTER CARPATHIANS: TOTAL									
Two	683488	1692619	2376107	568209	272323	840532	+1.54	+0.30	+0.65
INNER CARPATHIANS: TOTAL									
One	343019	912944	1255963	249767	252309	502076	+1.37	+0.52	+0.75
Two	592786	1165253	1758039	781124	53281	834405	+2.35	+0.08	+0.85
CARPATHIAN REGION-TOTAL									
Two	1276274	2857872	4134146	1349333	325604	1674937	+1.92	+0.21	+0.74

Sources: Rotariu et al. 1997a (1857 census), 1997b (1880 census) and files held by the Romanian Academy (1910 census)

Plate 2 The Buzău Subcarpathians (Muşcel valley west of Pătârlagele). This features a tributary valley of the Buzău river where Muşcel comprised a separate commune at the time. Subsistence farming extended over landslides on the higher ground (hence the hamlets of Calea Chiojdului and Mânăstirea) although at the valley mouth there were extensive vineyards at Valea Viei before the phylloxera epidemic

Plate 3 The Buzău Subcarpathians (Pănătău valley east of Pătârlagele). The scenery of this wide valley is diversified by the complex geology to combine valley slopes with landslides and structural surfaces. Subsistence farming (complementing the commercial farming on the Buzău terraces) generated large hill villages (e.g. Begu and Valea Fântânii) until resettlement was organised in the 1960s by the communist cooperative in Pănătău

the south-facing 'faţă' as opposed to the colder north-facing 'dos') while Popa (1991) on the southern edge of Transylvania (Ţara Oltului) offers a specimen of recent work in the Romanian ethnographic tradition highlighting the wider cultural unities of extensive lowland depressions first revealed in Conea's classic study of Ţara Loviştea (1934), The Subcarpathians received less attention, although they were also overpopulated and displayed great resourcefulness by a peasantry struggling to cope with landslides and mudflows on ustable terrain (Plates 2-3).

Two Scales of Industrial Development

Naturally industry offered a welcome route to diversification and while there was inevitably a dependence on outside capital for large projects, the diverse skills of the peasantry could be put to good use whenever opportunities arose as a pathway to local development (Anastasiu 1928). Thus in the Apuseni 17,200 jobs (8.4%) were provided in logging and wood processing, with a 2:1 ratio for the forest work and the processing which involved sawmilling as well as production of shingles (by the 'şindrilari') and wooden tub makers (by ciubărari). Moreover 9,900 (4.8%) worked in a wide range of trades and handicrafts; while 7,900 (3.8%) were servants in the service of state or others; mining employed 6,600 (3.2%) mostly in the areas of Abrud (still with its complement of peasant 'spălatori de aur' – crushing ore using water-powered mills) Brad and Zlatna; and 800 (0.4%) were in commerce (Ciomac & Popa-Necşa 1936 pp.204-9). Across the Carpathians, labour intensive industry frequently assumed a peasant character, including some parts of the timber industry (Plate 4). Indeed for thousands of workers across the region, but especially in the south, industry was predominantly small-scale and based on part-time work to supply rural needs. Sometimes a wider market was reached by 'comerţ ambulant' by the peasants themselves – e.g. plum brandy was taken by cart to the towns from the Buzău valley (Muică et al 2000); and wooden goods from the Apuseni distributed across the adjacent lowlands, as described in great detail by Florescu (1938a; 1938b; 1942) for the village of Vidra - or through special marketing organisations like the Furnica company serving the clothing industry in the Goleşti area of Muscel (Ioaniţiu 1926). Woollen cloth production made use of the water-powered fulling mill which attracted its share of attention especially in Mărgineni Sibiului (Irimie 1956) and the Someş valley (Morariu 1936). Despite problems of quality and standardisation, linked with capital shortage and the distraction of the seasonal rhythm of agricultural work, rural production remained substantial until the communist revolution and there was an elememnt of symbiosis e.g. it was possible that urban producers of spirits to combine rural production with a fine bouquet with neutral spirit distilled on a large scale. Statistical cover is limited but the 1941 census provides detailed information (although without coverage of northern Transylvania which

Plate 4 The Budeşti fulling mill, Maramureş. This remote village used water power for maize milling and sawmilling as well and such mills persist despite the discouragement of high taxation aimed as destroying private enterprise under communism. A high level of self-sufficiency was combined with work opportunities in the mines of Baia Mare and also seasonal migration to farm and forestry work in the south

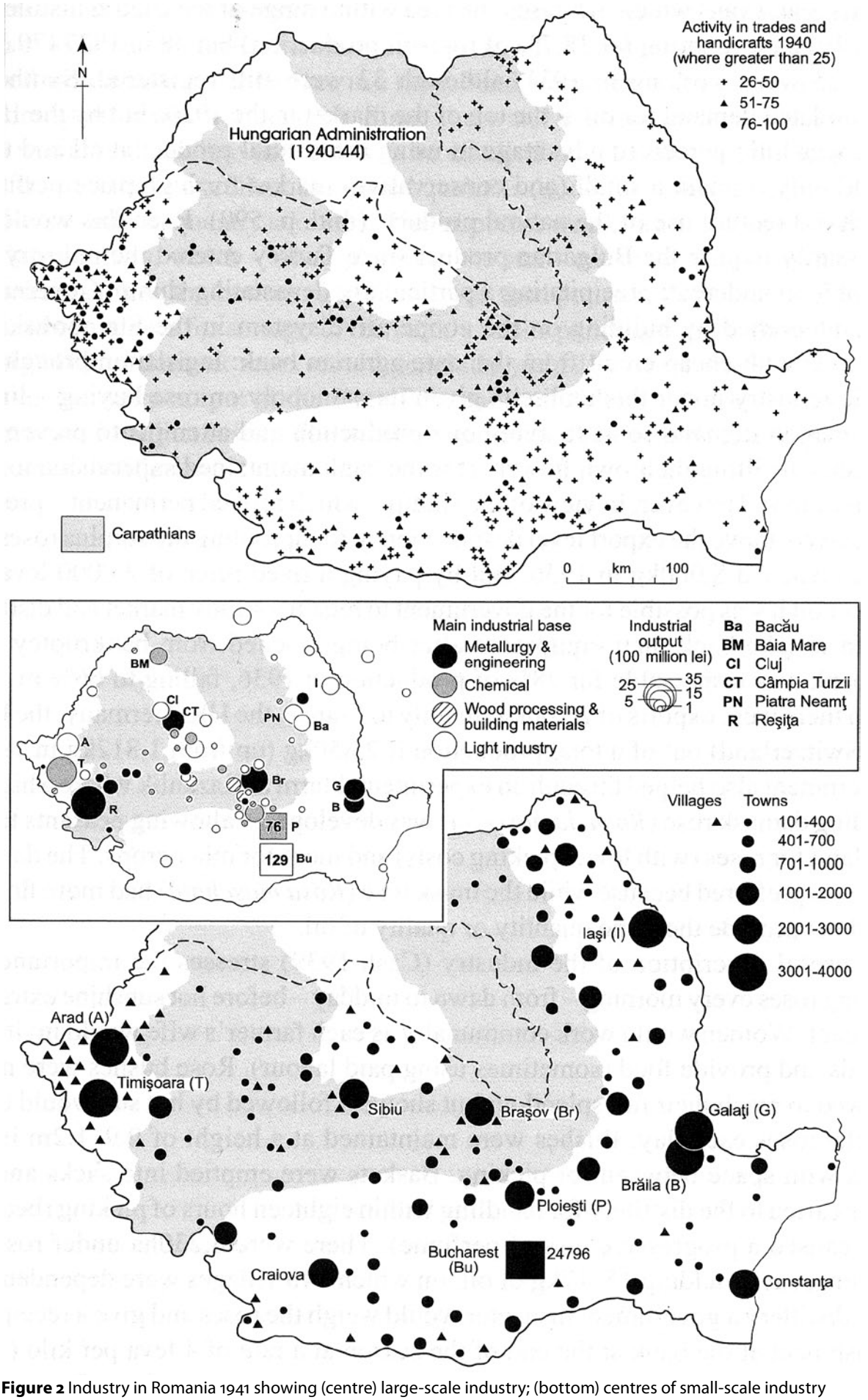

Figure 2 Industry in Romania 1941 showing (centre) large-scale industry; (bottom) centres of small-scale industry (mainly urban); (top) significant nodes of rural industry (number of - mainly family - businesses)

was then under Hungarian administration). Small clusters of up to 100 businesses occur frequently in both mountain and lowland areas where larger groups highlight the main towns but there are some dozens of centres (mostly rural) in the Carpathians especially in the Banat, Braşov and Prahova areas (Figure 2)

Large scale industry in the Carpathians was heavily based on the natural resources notably timber (discussed in detail below) and a wide range of minerals: iron ore, non-ferrous ores including gold and silver, salt and oil. In many cases the mining was more important for employment given its labour-intensive nature and the location of some of the processing outside the mountain region. Despite substantial development of industry at the time there were rarely more than 20 jobs in industry per 1,000 people; but Figure 2 highlights major clusters of industry in the Banat mountains (centred on the steel and engineering industry of Reşiţa); also the engineering complex of Braşov and the oil industry around Ploieşti. And Figure 3 shows that the mountain areas of Romania did relatively well since the central and western industrial regions lay broadly in the Carpathian zone along with the counties to the north (including Satu Mare) and also those lying immediately adjacent to the east and south including Prahova and part of the eastern industrial region (especially Bacău and Neamţ) where textiles were important as well as wood processing. However it is also evident that the county towns attracted a disproportionate share of businesses (Table 3). Outside Romania there was some expansion of metallurgy in the mountains, notably through new blast furnaces built in Trianon Hungary at Diósgyőr on the edge of the mountain region in the 1920s (a location with a good water supply where the necessary inputs could be assembled); and Czechoslovakia provided the remarkable example of a large vertically-integrated footwear complex through the Bata factories at Zlín on the northern edge of the White Carpathians.

The industrial sector cannot be examined in detail apart from the wood processing which is so fundamental to the mountain region, but it is worth emphasising the tremendous importance of the some industries acquired through territorial changes that resulted in particularly rapid progress. The Reşiţa metallurgical and engineering complex was of the greatest importance as a quality producer and a centre of excellence which made the town a reservoir of skill to be transplanted in various parts of Romania but also nutured in situ through new engineering products (such as oilfield equipment) as well as increased steel production (partly through the import of scrap) from 30,900t in 1920 to 243,300t in 1943 (accounting for virtually four-fifths of national steel production in 1936) while iron production advanced from 14,100t to 106,200t during the same period. Blast furnaces were overhauled and enlarged while new coke ovens were opened in 1934-5 (replacing those at Anina); a new Siemens-Martin furnace was installed in 1937 while the six older units were subsequently enlarged and improvements to the rolling capacity were made throughout the period (Hillinger & Turnock 1999). Much the same can be said for the non-ferrous mining and smelting com-

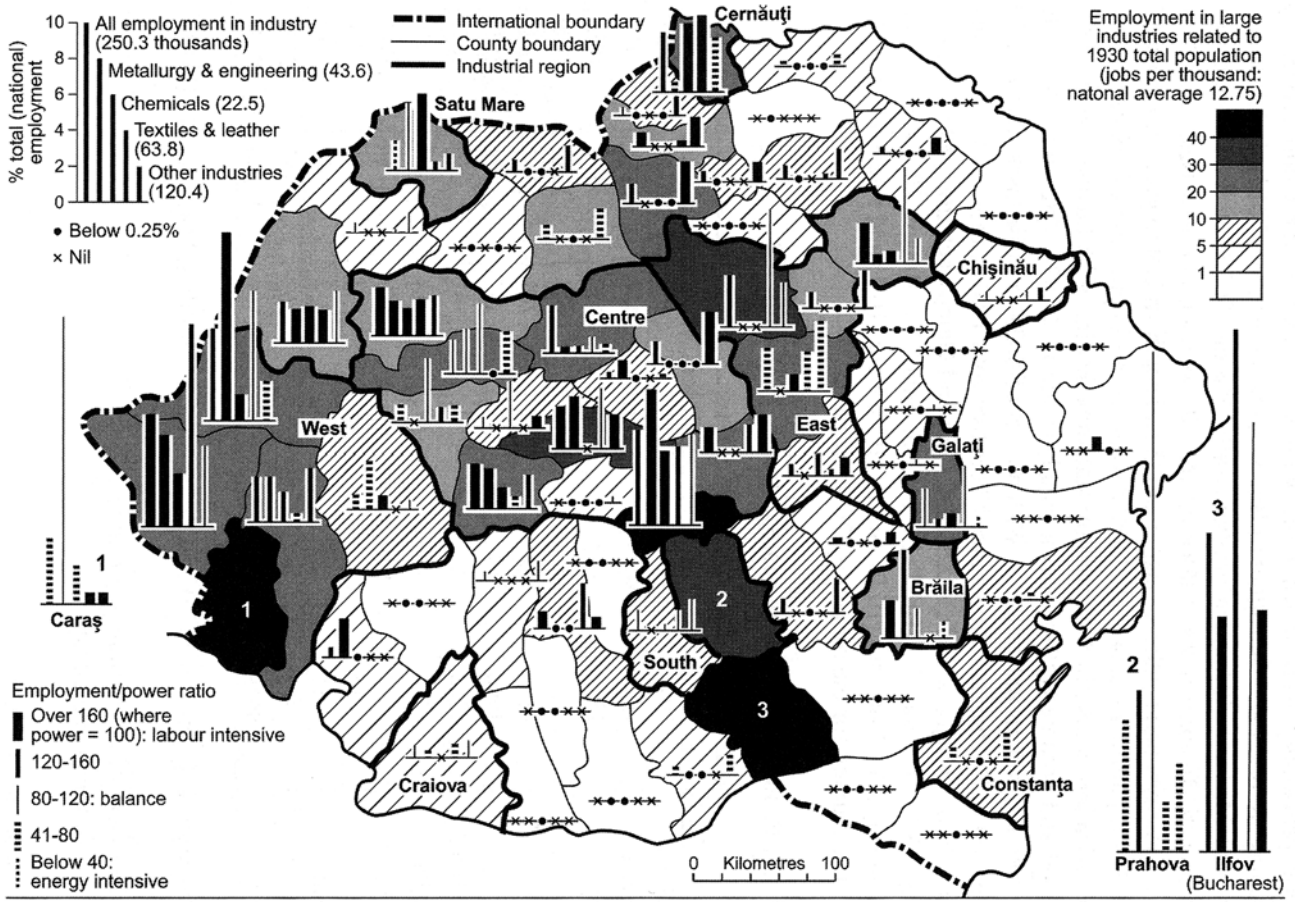

Figure 3 Industrial regions in Romania 1935

Table 3 ***Carpathian Romania : Businesses in the County Towns (contemporary system) and the Forest Sector profile***

County Town with County (* same name) and 1930 Population ('000s)		Businesses 1935					Forests and Wood Processing 1939							
		A	B	C	D	E	F	G	H	I	J	K	L	M
OLD KINGDOM														
Bacău*	31.1	9.5	3	22	74	4	#	*72.1	+	15	30	50	11	#
Buzău*	35.7	9.8	4	84	17	5	+	30.2	.	16	*	46	17	#
Câmpulung*	13.9	5.1	2	96	1	3	#	50.2	.	=	19	50	13	
Fălticeni (Baia)	14.1	4.4	3	11	87	2	+	22.9	-	12	51	25	6	
Focşani (Putna)	32.5	18.7	0	40	56	4	+	26.1	.	10	*	44	31	
Piatra Neamţ (Neamţ)	29.8	7.3	5	22	77	1	#	133.0	#	27	28	37	*	#
Piteşti (Argeş)	19.5	10.0	0	83	9	8	+	56.0	+	*	6	49	32	+
Ploieşti (Prahova)	79.1	26.2	2	75	16	9	+	32.5	.	7	*	49	26	#
Râmnicu Sărat*	15.0	5.3	2	68	26	6	.	14.1	.	10	*	44	31	
Râmnicu Vâlcea (Vâlcea)	15.6	3.9	4	79	6	15	+	41.7	+	13	8	47	24	#
Târgovişte (Dâmbovița)	22.3	6.2	4	78	12	10	+	35.7	+	=	7	26	50	
Târgu Jiu (Gorj)	13.0	4.8	2	89	4	7	+	*45.4	.	*	18	46	27	
T.Severin (Mehedinți)	21.1	9.2	1	75	7	18	-	31.3	+	*	.	63	22	
NEW PROVINCES														
Alba Iulia (Alba)	12.3	3.3	4	28	37	35	+	8.8	-	*	*	45	50	#
Arad*	77.2	28.4	2	24	26	50	+	52.5	+	=	=	48	46	
Bistrița (Năsăud)	14.1	3.8	4	48	41	11	+	*0.2	+	14	44	34	8	
Braşov*	59.2	20.3	2	24	24	52	+	*3.6	-	21	13	47	16	#
Câmpulung Moldovenesc*	10.1	2.5	4	21	64	15	#	0.0	-	19	69	10	*	
Cluj*	100.8	26.7	4	16	27	57	+	*14.8	-	*	31	25	39	
Dej (Someş)	15.1	3.2	6	12	51	37	+	*21.6	.	*	*	60	36	
Deva (Hunedoara)	10.9	2.5	5	19	37	54	#	*92.5	.	=	17	65	16	
Făgăraş*	7.8	2.9	2	31	29	40	+	6.7	-	*	30	55	*	
Lugoj (Severin)	23.6	8.8	5	19	37	54	+	131.0	+	*	5	63	26	
Miercurea Ciuc (Ciuc)	4.8	1.5	3	18	12	70	#	*6.8	-	*	82	13	=	
Odorhei*	8.5	2.4	4	8	23	69	+	0.0	-	*	18	60	19	
Oradea (Bihor)	82.7	23.7	3	9	37	54	+	65.0	+	=	7	59	32	
Oravița (Caraş)	9.6	2.1	5	33	14	53	#	*55.4	+	*	=	63	22	
Rădauți*	16.8	5.2	3	7	81	12	#	*8.3	-	24	53	17	*	
Satu Mare*	51.5	12.8	4	7	59	34	.	29.7	.	=	*	52	44	+
Sf.Gheorghe (Trei Scaune)	10.8	2.5	5	13	12	75	#	8.5	-	8	18	53		#
Sibiu*	49.3	10.2	6	34	17	49	#	31.2	.	=	43	29	21	#
Sighet (Maramureş)	27.3	5.9	6	4	75	21	#	41.0	.	*	45	45	*	
Storojinet*	8.7	2.5	3	6	76	18	+	0.0	-	24	20	48	*	
Suceava*	17.0	2.9	7	7	83	10	-	*1.7	-	26	*	49	18	
Târgu Mureş (Mureş)	38.5	8.9	5	17	26	57	+	*38.1	-	10	33	40	16	#
Timişoara (TimişTorontal)	91.6	28.9	3	18	15	67	-	23.2	+	=	.	=	90	+
Turda*	20.0	8.5	7	12	23	65	+	19.0	.	*	34	37	22	
Zalău (Sălaj)	8.3	1.4	7	10	19	71	.	*2.7	+	*	=	30	66	+

A: *Total (thousands);* **B:** *Business per thousand population.;* **C:** *Percentage owned by Romanians;* **D:** *Ditto - Jews;* **E:** *Ditto - Other Groups;* **F:** *Area forested in relation to the national average of 21.7% -: 0-49%; .: 50-99%; + : 100-199%; #: 200% and over;* **G:** *State-owned forest 'oooha - asterisk denotes an increase in the state forest share 1929-1939;* **H:** *State-owned forests in relation to the national average of 26.3%: same scale as for F;* **I:** *Percentage of forests with pine/fir: * below 5%, = below 1%;* **J:** *Ditto: spruce;* **K:** *Ditto: beech;* **L:** *Ditto: oak/hornbeam (balance comprises acacia, willow and other deciduous trees);* **M:** *Wood processing units: # over 1,000hp + 300-1,000hp Locations: (a) # over 1,000hp: Bacău (Bacău), Brasov and Zărnesti (Brasov), Bretcu and Comandău (Trei-Scaune), Brezoi (Valcea), Buşteni (Prahova), CAPS Curtea de Argeş (Argeş), Deta (Timiş-Torontal), Gălăuțaş (Ciuc), Nehiou (Buzău), Petreşti (Alba), Piatra Neamț (Neamț), Reghin (Mureş), Talmăciu (Sibiu); (b) + 300-1,000hp: Carei (Sălaj), Satu Mare (Satu Mare), CAPS Reghin (Mureş), Sibiu (Sibiu), Vălenii de Munte (Prahova); Vatra Dornei (Câmpulung Moldovenesc) CAPS indicates state ownership through Casa Autonomă a Pădurilor Statului*

Source: *Scărlătescu 1939 and Statistical Yearbook 1935*

plex of Baia Mare where output greatly increased duing the 1920s.Under Hungarian administration gold and silver ore had been separated at Kremnitz (Kremnica) in Slovakia, but it was decided to install an electrochemical system at Baia Mare's Ferneziu gold smelter in 1923 with equipment ordered from Berlin ready for production in 1925. Further electricity was needed and the Aurum company opened a new power station in 1932 with a capacity of some 300Kw (adding to the 340Kw of hydropower installed during 1895-1905). The Baia Mare area produced a third of all Romania's gold in 1937 after a decade of expansion and modernisation at Ferneziu; while the factory that started to process furnace gas from Ferneziu in 1908 for sulphuric acid and copper sulphate was relocated in 1925 (following purchase of the Rényi glass factory plus additional land) (Bălănescu et al. 2002 pp.83-140). The company (now named Phöenix) increased copper output in addition to its new sulphuric acid and fertiliser plants, supported by a new power station. Further power for the area came from additional hydro capacity at Firiza in 1936 and at Blidari/Valea Tinei under Hungarian administration in 1943.

Enhanced output from the Baia Mare mines was facilitated by new flotation units by Phöenix at Chiuzbaia/Herja in 1929 and Nistru in 1938; also at Dealul Crucii in 1931 along with Baia Sprie in the same year (but enlarged in 1933 with ore from Cavnic subsequently brought in by a 9.3km funicular from 1936); Valea Roşie by 1935 (with a rail link and a new mine shaft); and Săsar in 1936 coinciding with the opening if a new mine at this location on the Petroşani concession. The Dutch/German system of direct processing by cyanide was installed during 1937-9 at Săsar (100t/day) and considered the most modern in the region. The cyanide process was also installed at Dealul Crucii in 1932 (with a high capacity extraction machine added in 1936 at what has been described as a model mine) and a similar system was introduced at Băiţa. Expansion in the mines themselves continued with the dieselisation of underground operations reported at Cavnic in 1935 (with its own power station in 1936 – supplementing a small hydro project of 1900 - since it was one of the remoter units in the Baia Mare area); also at Dealul Crucii and Valea Roşie in 1937. Further afield at Borşa, the Pyryt concession was extended to non-ferrous (manganese and zinc) ores at Băile Borşa in 1936 with further prospecting in the area at Toroioaga. Elsewhere in Transylvania, reference must be made to the coalfield around Petroşani in the upper Jiu valley which, like Reşiţa, provided a pole of attraction for railway development; while artificial fibre technology paved the way for the small 'Viscoza' cellulose fibre factory at Lupeni near Petroşani in 1937. And finally Transylvania delivered a new industial raw material through the methane gas reserves discovered (accidentally) in the central part of the region in 1908 (by prospectors seeking potassium salts) and harnessed for use as a fuel during and after the First World War, before thoughts turned to the use of this very pure gas a raw material for chemistry in the 1930s. Production of carbon black for the tyre industry began at Copşa Mică in 1936 and an ammonia plant opened at Târnaveni in the same year was one of the first to produce hydrogen from methane gas in order to produce ammonia. Not only was ammonia basic to the production of fertiliser, plastics and synthetic fibres (through such intermediates as urea, hydrogen cyanide and acrylonitrile) but the dissociation of methane to produce ammonia also yielded acetylene - an intermediate needed to produce plastics, synthetic rubber and pharmaceuticals and hence the pivot for an expanding methane-based chemical industry that included subsequent projects at Făgăraş and Ucea mentioned in a later section.

The Timber Industry with Particular Reference to Romania

The forests continued to face heavy pressure for although the end of feudalism tended to terminate peasant rights to use the forests, commercial exploitation by capitalists accelerated. Moreover peasants retained some access to woodland through their own holdings, increased by land reform, and Górz (1994) stated that deforestation for agricultural purposes in the Podhale continued in the interwar period, for although the losses of the First World War reduced peasant pressure on the land in the 1920s subsequent growth had the opposite effect. There appears to be have been stability in the upper limit of agricultural land at Zawoja between the 1840s and the 1920s, while Kozak (2003) claimed an increase in the woodland cover from 25% in the 1820s to 36% in the 1930s in the Orawa region (an annual rate of 0.34%) and a new topographical map for Szczawnica in 1937 shows new plantations appearing since previous mapping of the 1840s. But this may not be typical of the Carpathians generally since peasant migration to urban-industrial areas was not widespread at this time and the forest transition (to an expanding woodland cover) did not really start until after the Second World War (Kozak et al. 2007). Therefore Pietrzak (1998; 2000) sees accelerated environmental transformation with population increase and a falling timberline (with recovery in Poland only subsequent to the formation of the Tatra national park) although the environmental impact was not fully proportionate to the population increase because there was a modest element of urbanisation.- even if the lives of most peasant farmers was scarcely affected by the towns (even in the Polish Carpathian foothills). There was certainly heavy pressure in parts of Romania like the Apuseni where peasants receiving woodland under land reform saw it as a means of creating more pasture – even on steeply-sloping land with a very thin soil cover - while the state was left to address the problems of erosion by stabilising torrential streams and establishing new plantations from 1927 onwards: following the example of Hungarian foresters who had created pine/acacia woodlands in the Arieş valley to protect the road and railway and also built stone dams built to regulate torrential streams.

Nevertheless there remained ample resources of oak-beech and spruce-fir timber for wood processing, not to mention the security function of extensive forests and the importance of hunting and the harvesting of accessory products such as berries and medicinal plants. Following the construction of a main line railway system, sawmills were installed at strategic points where raw timber could be supplied from the upper reaches of each drainage basin - initially by floating logs down rivers like the Argeş, Bistriţa, Dâmboviţa, Lotru, Sebeş, Topolog and Vâlsan - with small

water storages ('hăiturile') created by wooden barrages ('căsoaie') to cope with obstructions - but subsequently by using light railways (and roads) which avoided loss and quality deterioration. The relatively heavy weight of beechwood was also a consideration in favour of more sophisticated transport although until the 1930s such timber was largely ignored by commercial operators. In Romania the prime emphasis was on large stands of resinous timber that stood above the layer of beech forest - on a particular massive scale particularly the Eastern Carpathians (Enculescu 1924) (Table 3) where Reghin, Toplița and Gheorgheni had emerged as sawmilling centres on the semi-circular Transylvanian railway line from Braşov to Târgu Mureş, while Nehoiu and Piatra Neamț were situated on branch lines from Buzău and Bacău respectively. But the western forests were also opened up: indeed they had the advantage of a shorter distance to the main Central European markets. Thus the arrival of the railway at Bixad (northeast of Satu Mare) gave rise to sawmilling in 1910 sustained by a web of light forest railways penetrating the local valley systems. Narrow gauge meant lower building costs while transfer to standard gauge was not problem since the sawmilling process intervened. The poorer timber was available as a locomotive fuel and logs could be strapped to bogies without the need for container wagons. The feasibility of the railway was further enhanced by the generally downstream flow of timber which meant that, apart from stores and equipment, trains working against the gradient consisted of empty rolling stock only. Some forest roads were built before the Second World War but usually as accessories to railway systems: they only became the primary means of transport during the 1960s with the development of motor vehicles (Turnock 1990a).

The commercial companies employed steam power to produce large quantities of sawn timber ('cherestea') for export. Enterprise groupings in the timber industry (Chicos 1926) highlight five arbitrary statistical areas in the Eastern Carpathians: Gheorgheni-Miercurea Ciuc with 5,420 workers and 6,070hp of installed power; followed by Pojorâta-Vatra Dornei with 2,740 and 3,480 respectively; Covasna-Nehoiu with 2,610 and 3,800; Comăneşti-Dărmăneşti with 2,530 and 4,630; and Târgu Mureş-Toplița with 2,090 and 3,020. Figures for 1931-5 suggest that 18mln.cu.m of timber was being exploited annually: 10.0mln for processing and 8.0mln for firewood. Not all factories were concerned with sawmilling however. The production of furniture was well-established and some towns enjoyed particularly high reputations, notably Pâncota near Arad, while the chain of paper mills included Letea (Bacău) and Piatra Neamț in Moldavia, Buşteni in Wallachia and Petreşti and Prundul Bârgăului in Transylvania (Popescu-Spineni 1938). During the interwar period exploitation was extended and many new forest railways were built (Muică & Turnock 2003): in Moldavia at Caşin (1920), Oituz (1929) - using a former German 'Feldbahn' - and Comăneşti (1936); and in Transylvania at Reghin (1916) - when the area was still under Hungarian administration - Rastoliţa by Waldindustrie (1928) and Vişeu de Sus in Maramureş (1932) where localised floating of timber finally came to an end; though rafting continued in Moldavia on the Bistriţa (Vlad-Popovici 1942) (Plate 5). The early 1920s also saw construction in Banat at Berzasca - on the Danube at the Iron Gates - and at Margina to the east. Existing systems were extended like the complex network of narrow gauge railways that developed south of Anina immediately before and after the First World War and wood processing (including distillation) occurred at Carşa in the Miniş Valley: an efficient location in the context of a gravity flow of timber from all directions (while limiting the volume of material that had to be hauled over the ridge between Steierdorf and the standard gauge railhead at Anina). However the cutting of much of Carşa's catchment brought about a switch to Reşiţa during ther Second World War; facilitated by a new narrow-gauge railway to Secu to join the established timber transport canal system in the Bârzava valley (integrated with hydropower production) (Hillinger et al. 2003) (Figure 4).

Perhaps the most outstanding case of light railway development concerns the Covasna-Comandău area of southeastern Transylvania where construction began in 1878 through a horse-drawn forest railway (Gyulafalva-Halom) linked with carting to Covasna; followed by a spectacular steam railway by the Transylvanian Forest Industry Company (Erdélyi Erdóipar) including an inclined plane at Siclău climbing 327m over 1,236m to allow through working to the standard gauge railhead, with sawmilling in the forest at Comandău at an altitude of 1014m to reduce pressure on the incline which could only handle one wagon at a time. This network - considered the first forest railway on present Romanian territory to use iron rails and steam locomotives - also extended through the Grödl company's concession in the Bâsca valleys to meet construction northwards from the Gotz company's Nehoiu sawmill in the Buzău valley and coordination between the operations enabled some timber in Hungary to be taken out southwards across the old frontier. The creation of Greater Romania increased the coordination across the main Carpathian watershed so that companies on the Transylvanian side could extend their

Plate 5 The Vaser valley forest railway at Vişeu de Sus (Maramureş). This railway was finished in 1932 and extends for some 40kms along the Vaser tributary of the Vişeu river to the Ukrainian frontier. It replaced the floating system and is still in operation as an ecologically preferable alternative to road-building (although the narrowness of the valley in a high rainfall area makes the lines vulnerable to damage during heavy storms). It is a tourist attraction as one of only two forest railways still working in Romania

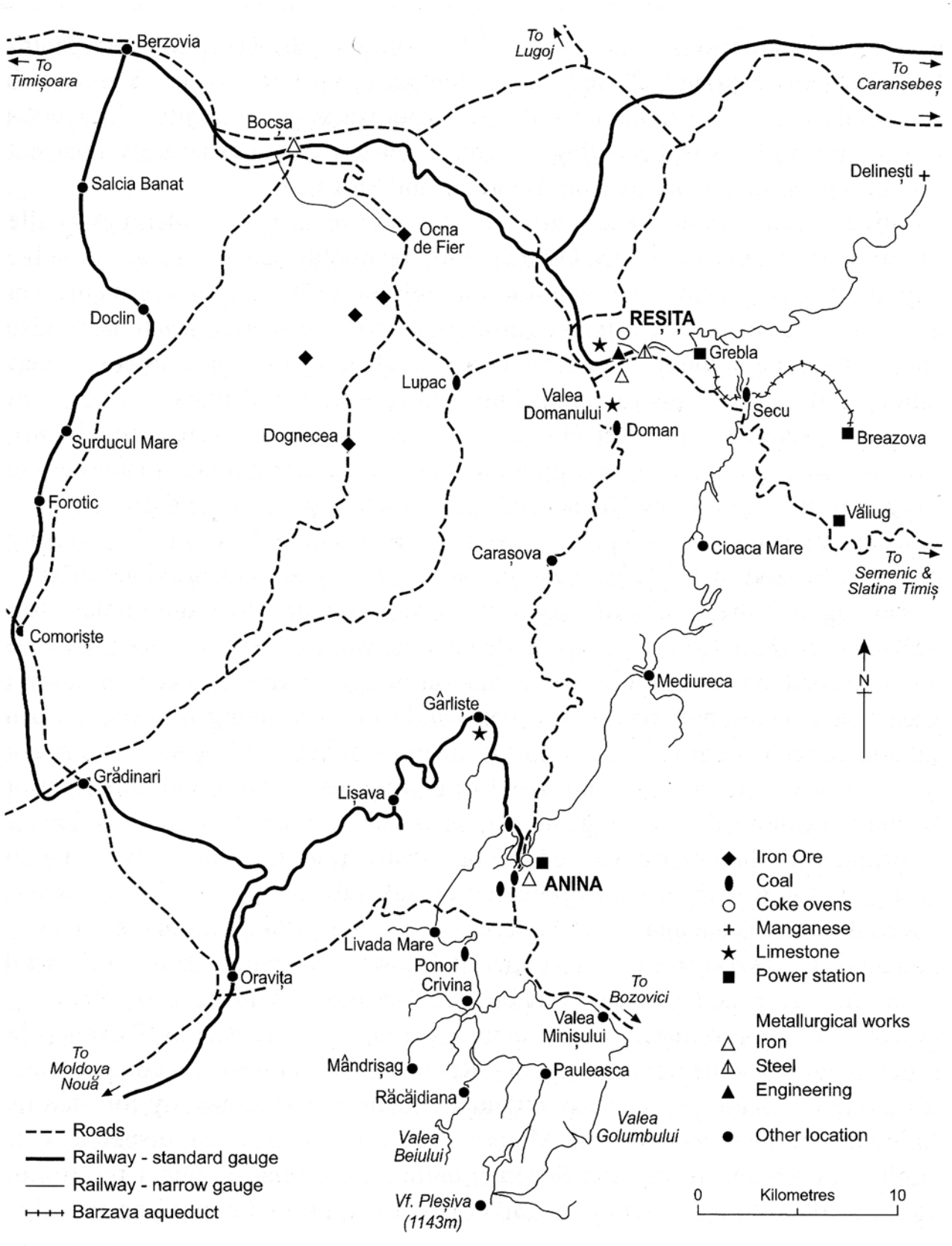

Figure 4 The Anina-Reșița industrial region

railways to work valuable timber on the upper surfaces on the eastern side in preference to building separate feeder lines from the main line system (Figure 5). This was a reflection of distance but also of altitude because the fir-spruce forests lay at high levels of 1,000-1,600m. So from the forests of the Bâsca Mare and the logging centre of Comandău the railway system was extended over watershed into Vrancea - with further inclines at Goru and Verdele - to work 4,000ha of forest in the Năruja valley from 1928.

This large commercial bloc, dominated by the Grödel and Frația/Năruja companies, was presumably undermined only by Romania's loss of southern Transylvania in

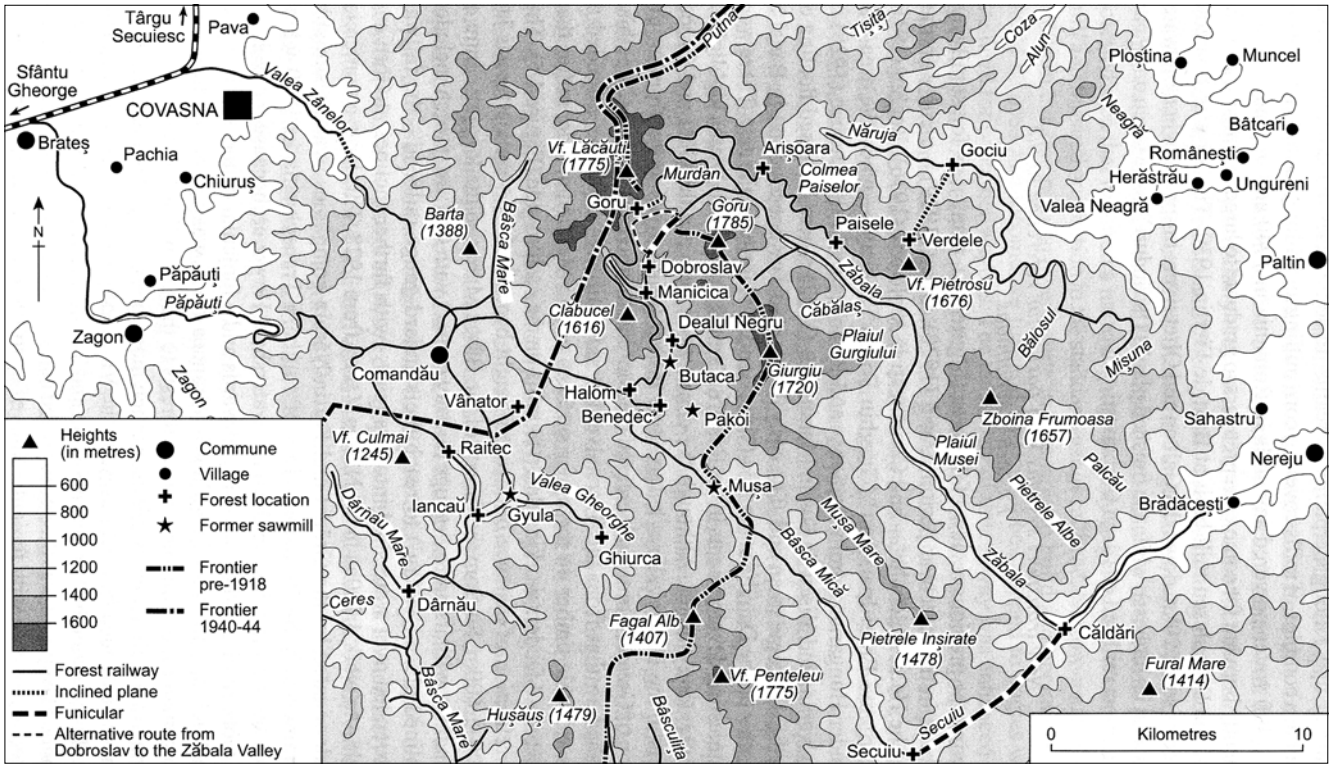

Figure 5 Forest railways in the Covasna-Comandău area of the Eastern Carpathians

1940 which restored the frontier close to the main watershed. However because the Nehoiu-based Gotz empire had expanded northwards and a funicular connected the upper Bâsca Mică with the Zăbala valley in Vrancea there was the possibility of an all-Romanian route from the Vrancea forests to the sawmill at Nehoiu. Indeed, funiculars were used much more extensively after 1918 (when the frontier in the Eastern Carpathians was removed) to avoid long rail hauls to the main line following the Siret valley. Although the Tișița system had initially extended from Mărășești (north of Focșani) to the Vrancea Mountains the crossing of the Șușița-Putna watershed between Soveja and Tulnici reduced the efficiency of rail transport. The line was therefore closed at the lower end after 1918 while the higher Putna section above Tulnici operated in isolation in conjunction with funicular links of some 10kms with (a) Colonia Zernea on the Ghelința system near Brețcu and (b) Lepșa on the Oituz system (not be confused with Lepșa in Vrancea) as well as (c) Scutaru on the Caşin system giving access to the sawmill of Onești in the Trotuș valley of Moldavia. Available dates include 1932 for Lepșa - also the date for the forest railway to the Oituz sawmill - and 1936 for Scutaru. Indeed in the latter case there was also a funicular into valleys like the Cremeneț (above Câmpuri) that were Șușița tributaries originally accessed by the lower section of the Tișița railway through a wooden skidway ('goangă').

However in 1928 there were 1.89mln.ha of state woodland of which only 0.62mln was exploited while 0.23mln had transport but no exploitation and the rest was protection woodland or was unavailable for exploitation due to inaccessibility. But at this juncture a significant initiative arose through the formation of a 'Casa Autonomă a Pădurilor Statului' (CAPS) to seek more rational exploitation and greater use of beechwood. Some was used for furniture and cellulose, although much still went for charcoal and firewood. Indeed, 91.6% of the 2.24mln.cu.m of timber produced in 1938 was still resinous compared with only 4.1 for beech and 4.3 for other species. CAPS also represented a belated compromise in the ideological struggle over the issue of private or state enterprise in exploitation of the national patrimony. CAPS undertook railway building in areas like Stâlpeni north of Pitești (1935) and the Bistrița valley west of Râmnicu Vâlcea where an initially-isolated railway in the upper valley was extended to the main line at Băbeni during the Second World War. CAPS also took over the Gurghiu valley line from Reghin to Lăpușna and the Leordina-Socolău line in Maramureș - built as an Austrian Feldbahn to contain the Brussilow offensive: both operated passenger services and were listed in the national railway timetable as 'calea ferată particulară'. They also used the 76cm gauge and the standard CAPS locomotive was the forerunner of the type used countrywide after nationalisation. However in 1928 only 2,780kms out of a total of 4,350kms used the 76cm gauge (there were also 1,400kms at 600mm and 110kms at 1000mm plus 60kms of standard gauge track). Evidently there was some rationalisation by 1938 when the total network was down to 3,500kms (with 16 fixed funiculars) and presumably many 600mm lines, using horse traction, had been eliminated. However it was still possible for local initiatives to take place and a new railway at Estelnic in Covasna was built in c.1933 as a collaborative venture to bring in timber to four separate Jewish-owned sawmills which then used lorries to take the finished planks to the standard gauge railhead at Brețcu.

The commercial companies operated side by side with small-scale industry in the hands of peasants working small private forests to serve a more local market. Allocation of woodlands to peasant families under the land reform strengthened this smaller scale of operation which typically gave rise to small water-powered sawmills ('joagare de

apă') along Carpathian streams. In some cases the sawmill was one element in a complex of mills covering cornmilling and fulling as well. There were about 1,400 water-powered sawmills in Romania in 1940. In the Sadu valley near Sibiu where a large sawmill was established at Tălmaciu by the Italian Feltrinelli company before 1914, there were also six 'joagărele' worked interwar by Sadu people near Valea Plaiului (six kilometers above the village) producing planks with thicknesses of 1.5, 2.5 and 4-5cms according the dimensions of the trunk ('buşteni') (Lotreanu 1988). There was also a family 'ţiglărie' (wood tile) business in Sadu village and a second was running in 1927 using the skills of Hungarian 'ţiglari' from Harghita. In the Apuseni, Ciomac & Popa-Necşa (1936) refer to 227 sawmills in 1933 (employing some 1,500 people) with a total capacity of 2,426hp (32.6% came from waterpower, 61.7 from steam or oil and 5.7% from electricity) and the only really large unit was at Zlatna. However these mills were more modern than the traditional cornmills with a total power of 3,289hp (94.9% from water, 3.9% from steam/oil and 1.2% from electricity) spread across 1,227 separate units. A problem for the peasant sector was the lower level of standardisation which meant selling prices 30-40% below factory products; a matter that prompted the innovation of cooperative working at the state sawmill in Gilău and the idea of cooperatives on a larger scale working much larger units. Nevertheless it was possible for some entrepreneurs to graduate to larger premises as in the case of the Dinculescu mill built at Baia de Fier in 1930. Timber was floated a distance of some 20kms down the Galben and Olteţ rivers in spring (when the water level was at its highest), while the finished planks ('scânduri') were taken on by cart to the nearest railhead at Târgu Cărbuneşti. Another problem was the lack of sustainability in the peasant sector

Opportunities for Tourism

The forest railways usually provided a public service and made a substantial contribution to the development of remote areas, not least through the scope for tourism which could involve quite distinguished visitors when hunting lodges were installed at the head of a valley; as in the case of the Gurghiu valley where the departure of Austrian dignitaries at the end of the First World War opened the way for the Romanian royal family would arrive by special saloon (a motorised 'Royal Trolley' which still survives) before the communist leader N.Ceauşescu made good use of what became a substantial party complex at Lăpuşna: important enough for the valley to be closed to outsiders without special permission. Meanwhile the numerous spa resorts continued to attract custom as was also the case in Poland where the reputation of 'szczawa' watere and improved access to Krynica (Szczawnica) - which lacked a rail service - gave rise to inhalation treatment in 1935 through the Modrzewie centre with Poland's first 'pneumatic chambers' specialised for the treatment of the upper respiratory system and especially asthma (Groch et al. 2000). New resorts emerged like the Piwniczna spa in the Beskid Sadęcki inaugurated in 1931 (now with a ski lift in Sucha Dolina). The Tatra scenery continued to inspire through rafting trips through the Dunajec Gorge and Zakopane's growth was underpinned by municipal status gained in 1933: international events included the world skiing championships in 1929 and 1939, while skiing also developed further east in the Stanislawów (Ivan-Frankivsk) and Kołomyja areas (Dobrowski 2005). Progress in the protection of nature was signalled most notably in 1924 when Count Zamoyski, a leading landowner in the Tatra, established a national foundation which grew into the present national park. Cultural tourism could focus on the Hutsul community and history (albeit contested) that harked back to the Vlach theory of fifteenth century colonisation of the Low Beskid, producing a hybrid Vlach-Slav culture, with religious unity under the Uniate religion (emerging in the late sixteenth century when the Kyiv Orthodox Church was influenced by the Polish-Lithuanian Commonwealth to accept Papal authority). The growing self-awareness linked with Franz Josef's visit to the Kołomyja ethnographic exhibition in 1880 did not produce a Lemko homeland ('Lemkoszczyzna') in 1918 but it did give rise to a Society of Friends of the Hutsuls, formed in 1933 to boost regional authenticity though tourism linked with archictecture and handicrafts: woollen 'lyzhnyky' blankets, wooden utensils and ceramics. Chalets were provided on hiking routes which included the 'Hutsul Route March' commemorating the struggle by the Second Brigade of the Polish Legion against the Russians in 1914-5 in which many Hutsuls participated.

Expanding the Infrastructure: Transport and Energy

This was a major issue for the Carpathian states that needed to increase cohesion in their new territories. There were major challenges in the mountains and much potential for employment in projects concerned with transport and energy, although financial constraints were always going to restrict activity to the most pressing needs. Railways were needed for both economic and strategic reasons and in Czechosloavkia there were two new lines linking Moravia with Slovakia across the White Carpathians: Veselí nad Moravou to Nové Mesto nad Váhom via Velká nad Veličkou in 1929 and Ostrava-Púchov via Vsetin in 1937. Also a central trunk railway for Slovakia was pieced together through new sections from Handlova to Štubňa in 1931 and Štubňa to Harmanec in 1939; also further east from Ćervina Skála to Miníšek nad Hnilcom in 1936. Romania was the country with the most pressing needs and despite rejection of the option of foreign loans the Liberal government nevertheless embarked on the short gap in the direct line between Arad and Oradea at Chişineu Criş in 1923: of great strategic importance in providing a link not only between the towns on the eastern edge of the Pannonian plain but between the three countries of the Little Entente - connecting Stamora Moraviţa on the Romanian-Yugoslav frontier to Halmeu on the Romanian-Czechoslovak border (Turnock 2004) (Figure 1). Then work on three mountain railways began in 1924. One project was to extend from Harman near Braşov to join the branch from Buzău to Nehoiaşu and it was intended to create a direct link from Transylvania to the major Romanian ports and take the pressure off the Bucharest-Braşov line which climbed to 1057m at Predeal. A two-track main line was intended and gentle gradients called for a

4.37km.tunnel between Teliu and Întorsura Buzăului – the longest tunnel in Romania by more than a kilometre (with the 3.33km tunnel at Bereşti north of Galaţi now in second place). A project was also started in the Jiu gorge to connect Bumbeşti with Livezeni and provide a more direct route for transporting Petroşani coal to Wallachia. And there was also a link needed between Ilva Mică in northeast Transylvania and Vatra Dornei in Bucovina: it was another line of great strategic importance so much so that the Habsburg Empire had been obliged during the First World War to (hastily) build a petrol-electric railway system between Vatra Dornei, Dornişoara and Tiha Bârgăului near Bistrita to evacuate equipment cut off by Russia's Brussilow offensive of 1915-6. Locomotives were powered by 150hp petrol engines driving 300v/90w dynamos which allowed the power wagon to handle trains of four or five trailer wagons. Although the line was built to standard gauge, the equipment salvaged from Galicia had to be dismantled prior to transfer. In the opposite direction there was some transfer of stores, including horse fodder. The line was restored in 1922-3 and used by the Romanians as the only link between the Transylvania and Bucovina until a standard-gauge alternative became available in 1938 (when only the short Vatra Dornei-Dornişoara section was retained). However although these three projects were started it was not until a foreign loan was negotiated in 1929 by a new (National Peasant) government that progress could be accelerated, although at this time a French railway specialist (G.Leverve) concentrated on economic potential and scrapped the Ilva Mică-Vatra Dornei project (temporarily) on the grounds that it was made unnecessary by the convention negotiated in 1928 with Czechoslovakia and Poland to secure transit facilities through these countries enabling a Cernăuţi-Oradea service to start in 1930. Romania reciprocated through facilities enabling Poland to extract timber from northern Bucovina, although this was only possible when the Zeleszczyki bridge was rebuilt in 1930. However all railway projects were soon to be compromised by the depression although the Harman-Nehoiaşu project did reach Întorsura Buzăului in 1931 with the great tunnel completed. And slow progress led Tudoran (1934) to refer to 1919-33 as an 'epoca de stagnare' without precedent during the railway age and particularly regrettable because there was so much to be done. He was concerned with national defence: both production of armaments and transport systems for defensive action.

Under the more challenging political climate of the mid-1930s, the royal dictatorship under Carol II considered strategic issues through a range of projects proposed by Tudoran (1934). And a new start was heralded in 1937 by the creation of a special construction organisation for military projects ('Serviciul Lucrărilor Militare') which took over the Carpathian programme and eventually evolved into the 'Centrala de Construcţii Căi Ferate' which was prominent during the communist years. The Ilva Mică project was restarted in preference to an alternative route further to the south that had emerged through supra-national planning for a new railway from Vienna and Budapest to the Black Sea that would strengthen links between Central Europe and the Middle East. This alternative route (Cluj-Topliţa-Piatra Neamţ or Cluj-Reghin-Ditrău-Tulgheş-Târgu Neamţ-Paşcani) also attracted interest as a potential electrified route supplied by a hydropower project at Bicaz, although this was hardly a feasible option in the 1930s. Work at Întorsura Buzăului also resumed (after 1936) but not with high priority and the only result was a narrow gauge line for local services to Crasna in 1948 (which could conceivably have been intended as a basis for a standard gauge line later). Although this project was prioritised in 1941 it became less important after the solution to the Predeal bottleneck was achieved through partial dieselisation and then a doubling of the track (while a new line from Curtea de Argeş to Râmnicu Vâlcea was now being seen as the best option for additional capacity between Bucharest and Transylvaia long-term). Meanwhile some new priorities emerged to connect Salva with Maramureş and Deva with Brad. In terms of completions it was 1938 before the Ilva Mică line was finished and a short 34km line was ready to connect the Reşiţa heavy industrial complex with Caransebeş on the main line from Timişoara to Bucharest (one of the less ambitious projects that was nevertheless long-delayed). Meanwhile the line from Salva to link with the isolated Maramureş network at Vişeu was started in 1937 and reached Moisei as a narrow gauge line in 1940 - before this project too was overtaken by the loss of northern Transylvania in 1940 and full completion on a standard-gauge basis was delayed until 1949. But the major territorial losses of 1940 meant that priorities had to be reconsidered comprehensively (Tudoran 1941) with the Bucharest-Braşov line now seem as the key route to Germany via Hungary: albeit with electrification rejected in favour of the widening already mentioned (following the introduction of a 4,000hp diesel-electric locomotive was ordered from Brown-Boveri in 1936 and delivered 1938). The double track extension from Câmpina to Braşov was actually decided in 1939, with realignment to avoid the Buşteni and Posada tunnels in 1941. The line then met wartime demands although there was a critical situation when Timiş tunnel (built in 1878 and lacking ventilation) had to be closed for two months in 1944 for overhaul due to deterioration caused by the sulphurous smoke generated by heavy traffic (with trains hauled by up to four steam locosmotives). Meanwhile the loss of Cluj and Oradea in 1940 switched attention to improving access to Sibiu and Arad: hence the new 472m Dealul Negru tunnel through the Perşani Mountains (ready in 1943) to avoid the difficult, steeply-graded alignment between Valea Homorod and Sercaia (with sharp curves and a narrow Diana tunnel) – originally selected only due to assistance given by the local authorities at Şinca Nouă/Veche and Ohaba. An alternative solution would have used the Copşa Mică-Sibiu line with a cut-off between Ocna Sibiului and Gh.Lăzar (avoiding Sibiu itself) or, more radically, the Curtea de Argeş-Râmnicu Vâlcea route. Neither option was a high priority until 1940 when the partition of Transylvania called for a rapid response. Other aspects of planning involved persistence with the extremely challenging Bumbeşti-Livezeni project (with the Bumbeşti-Meri section completed in 1941) and a link with the now isolated of sourthern Bihor including the Apuseni Mountains with the Deva-Brad section to begin with (to be followed by Vărfurile-Vaşcău). Meanwhile

the Hungarians had their own priorities in northern Transylvania, needing the Deda-Sărățel link (1941) to reach the Harghita and Covasna through Satu Mare, with Lechința-Iuda (1942) as a narrow-guage equivalent with a more localised function. Romania also made considerable use of narrow gauge for passenger and timber transport. In addition to the two projects mentioned in this section – and others by the logging companies - the Cloșani company built a line from Apa Neagră to Turnu Severin in 1934 (although landsliding on the escarpment 150-300m above the Danube at Colibași-Malovățu subsequently led to closure in favour of access via Tismana and Târgu Jiu in 1951. And the Orăștie-Cetate line was built during 1944-9.

Meanwhile road modernisation was facilitated by the monopoly/contract awarded to Swedish Match ('Svenska Väggaktiebolaget') in 1931 which focused attention on the axial route Bucharest-Brașov-Sibiu-Alba Iulia-Cluj-Oradea. The rhythm of work was maintained to 1938; although a new high-level strategic road was also built across the Carpathians from Sebeș to Novaci to fill the gap between the valley routes of Deva-Petroșani-Craiova via the Jiu valley to the west and Sibiu-Râmnicu Vâlcea-Slatina via the Olt valley to the east. Planning for new motorways and expressways identified such key Carpathian routes as Turnu Severin-Timișoara; Pitești-Râmnicu Vâlcea-Sibiu-Deva-Arad; Ploiești-Brașov-Târgu Mureș-Cluj-Oradea; and the route along the mountain edge from Ploiești to Cernăuți: also routes of secondary importance like Suceava-Dej-Satu Mare; Bacău-Brașov-Pitești; and Oradea-Deva-Târgu Jiu-Craiova. A plan by Manoilescu (1941) endorsed the main elements as well as 'Drumul Graniței de Nord' from Botoșani/Suceava to Satu Mare via Câmpulung Moldovenesc and Bistrița; while modifying the Bacău-Pitești route to Adjud-Brașov-Sibiu and proposing in addition a novel 'Drumul Subcarpatic' following an almost straight line from Ploiești to Turnu Severin: very difficult to build but strategically beneficial on the German model. However this plan was not implemented and it was not until c.1970 that motorways returned to the political agenda with Bucharest-Pitești the first major achievement.

Energy: Especially the Opportunities for Hydropower

Hydrocarbon fuels involved primarily Romania's oil production: falling from 1.84mln.t in 1913 to 1.37 in 1922 before peaking at 8.39 in 1935, which included a large margin for export. Poland's oil production fell from 1.05mln.t in 1913 to 0.71 in 1922 and 0.50 in 1937 (though there was gas available along the axis from Gorlice/Krosno to Drohobycz/Stryj, extending northwards to Kielce and Lwów). Low grade coal was also available in the Carpathians in Slovakia (Nitra valley) and in various parts of Romania: mainly Bihor, the Dâmbovița-Prahova area and Comănești; while Romania also had the better quality coal in the Jiu valley which played such a major role in transport planning, However there was a massive potential for hydropower and it is important to explain why major public works were not feasible during the inter-war period. Pop (1996) describes a total 16 projects completed in the Carpathians, mainly for industrial use during 1888-1900 with a total capacity of 3.75MW (the largest being 1.00MW at Sinaia in 1900) with an average of 0.23MW. Then during 1901-1918 there were 35 projects with a total capacity of 18.21MW of which the five largest - Grebla near Reșița (5.00MW) in 1904, followed by Someșul Rece near Cluj (2.00MW) in 1910, Sadu II near Sibiu (1.24MW) in 1907, Târgu Mureș (1.20MW) in 1914 and Câmpulung (1.10MW) in 1912 – accounted for 57.9%; while the average was 0.52MW. Then from 1919 to 1945 6.04MW were added through enlargements of existing projects while 26.42MW were provided by 16 new projects averaging 1.65MW of which the largest was Dobrești near Sinaia with 16.13MW: a major project completed in 1930 to supply Bucharest (complementing power stations in the city itself and a thermal power station at Schitu Golești near Câmpulung). There were three other schemes larger than 1.00MW: 3.00MW at Mărul to supply the Bistra metallurgical works (now known as Oțelul Roșu), 1.50MW at Sadu-Bumbești near Târgu Jiu to supply a new strategic factory and 1.26MW at Cernatu-Săcele in 1928 to supply the Câmpina oilfield. In terms of MW per annum the interwar period scored 1.25 compared with 0.76 for 1888-1918. This demonstrates a progression but it was hardly a massive achievement compared with post-1945 development. However demand was quite small (outside Bucharest) – since many steam engines were still in use – and there was no immediate prospect of a nationwide electricity grid. Hence individually small stations were generally sought with Dobrești and its 110kv/140km transmission line to Bucharest very much an exception (though in their time Sadu station's 14km transmission link with Sibiu in 1896 and Someșul Rece's 27km line to Cluj in 1906 were also significant realisations). There was simply no economic case for very large hydro projects in remote mountain areas with relatively cheap oil residue available for use as a fuel in thermal power stations, as it was on the railways for burning in conjunction with lignite in steam locomotive boilers. There were also some small coalfields that the cities could exploit: thus Bucharest drew on 20.4MW of thermal capacity at Schitu-Golești (1930) while Cluj had a supply from the 10.5MW station at Aghireș-Șorecani.

Of course all this did not prevent surveys of the potential by such leading engineers as D.Leonida (1941) and D.Pavel (1930). Leonida's (1941, p.26) vision involved a grid connecting two 'supercentrale': one at Bicaz (to be named 'Regele Ferdinand' in recognition of the former king's great interest in electrification; complementing the tribute accorded to Carol II - as 'Regele Căilor noastre Ferate' – for accelerating railway costruction in the 1930s) and the other at the Danube's Iron Gates ('Porțile de Fier') to integrate existing isolated stations and allow electrification of the railways. The Bicaz project had been recommended earlier (Leonida 1923; Pastia 1929) and linked (as already noted) with a new East Carpathian railway from Piatra Neamț through Bicaz to Toplița (providing a further connection between Moldavia and Transylvania) but in the absence of an early start at Bicaz the more northerly Ilva Mică-Vatra Dornei route was preferred. Electrification would still have been highly beneficial for the Ploiești-Brașov line via Predeal but the high cost of conversion led to capacity increases by other means. Indeed, given the prime focus on this route for electrifica-

tion attention was diverted away from distant hydropower sites to the substantial local lignite reserves that were more accessible to major centres of demand. Thus railway electrification was tied in part to the exploitation of lignite in the Doicești area of Dâmbovița and the Filipeștii de Pădure area of Prahova with a power station proposed for the latter. Industrial lines were built e.g. to open up the Palanga mine in 1945 but, with railway electrification a relatively low priority in the early communist years, it was Doicești that was chosen as a new power station location with the Prahova lignite supplied via the new Ploiești-Târgoviște line (1948) and branches running north to the mines from I.I.L.Caragiale

The Role of the State: Eugenics and Sociology in Romania

While improved health and education services were priorities everywhere, Romania developed a unitary philosophy through eugenics which gave a central role to the health of a nation and its development subject to laws of heredity and evolution (with biology the fundamental academic discipline: hence 'biopolitica' for the total eugenic state). It emphasised preventive health policies with a focus on hygiene and improved medicine, but it might also imply a coercive/ authoritarian approach through restricting marriage and through such anti-democratic leanings young people were drawn into acceptance of a right-wing ideology. Hence the advocates of eugenics opposed the liberal politics in the 1920s before drawing a positive response through the National Peasant Party's Public Health & Welfare Law in 1930: the most comprehensive piece of public health legislation of the inter-war period. The movement challenged the Orthodox and Uniate churches in Transylvania and threatened to remove the churches from a central role in the community. Advocates conceived a 'natural hierarchy'of classes reflected through intelligence which suggested that there should be a rigorous selection process for students entering higher education. I.Moldovan - the intellectual force behind the 1930 law - made progress in Transylvania with his Institute of Hygiene in Cluj and advocacy of mobile dispensaries. He sought central direction through doctors as elite technocrats but with a decentralised system of implementation since his Gilău station was highlighted by the 1930 law as a model district health centre or 'plasa sanitară'. From this beginning eugenics then trended towards obligatory counselling for married couples (e.g. to inculcate a sense of eugenic responsibility among urban dwellers to avoid large families) and limitation of the right to marry (especially in Transylvanian towns). Advocates sought to influence Carol II, the Iron Guard and Marshall Antonescu, though the right wing agenda ran way ahead of them. In 1936 the Penal Code criminalised marriage to a healthy person by a sufferer of vinereal disease or another epidemic disease. And Carol II's dictatorship produced the Social Service Programme (masterminded by D.Gusti) which included public health (with an expanded role for doctors) as a preoccupation of 3,000 Culture Hearths founded in 1939 to operate with local funds to emphasise decentralisation and self-reliance. And under the Anti-Jewish Law of 1940 mixed Jewish-Romanian marriages were forbidden.

Through the Astra organisation - over which Moldovan presided in 1932 - there was a shift to wider cultural and development issues with conferences in market towns dealing with public health issues (through the Biopolitical Section started in 1926) while books such as the study by Ciomac and Popa-Necșa (1936) on the Apuseni raised the problem of providing education and other services for a scattered population living on the hillltops. V.Ilea's idea for peasant schools was implemented in Reghin to educate men (nominated by local teachers, priests and doctors) to be village leaders and agents for cultural betterment. But significantly there was an "unspoken but assumed exclusionary attitude towards ethnic non-Romanians [and the schools] reinforced ethnic segregation and sought to instill nationalism among their students" (Bucur 2002 p.170). There was also attention to schools for women as the founding of a Feminine Biopolitical Subsection in the late 1920s sought to enhance biological vitality and counter "alluring images of the city" (Ibid p.173) which drew young unmarried women to the towns in search of romance and adventure. While it was desirable to discourage prostitution, rural-urban migration was a function of economic change and hence the need for education on social diseases and the importance of individual hygiene (though education was potentially a double-edged sword). Subsequent research during the war years was linked with 'undesirable minorities' (Jews and Roma) and anthropometric measurements of Transnistrian Romanians in 1942 in the hope of demonstrating 'authenticity' and deriving 'scientific' criteria for weeding out undesirable 'others' (Ibid p.224). In 1942 Astra (transferred to Sibiu in 1940) founded a Biopolitical Section (separate from the Medical Section) out of concern for the welfare of poor rural Romanians. This reflects the perceived value of rural stock - notwithstanding the superior status of the urban middle class - since eugenicists hoped to avoid the social costs of industrialisation: alcoholism, malnutrition and syphilis. It was important to influence the rural professionals to help "turn this massive population into a well-integrated functioning part of the national community and the modern Romanian state" (Ibid p.73). Priests were expected to approach their work in sympathy with the eugenic principles - while the presence of more doctors was expected to provide a secular alternative. Thus Moldovan got young doctors to research in rural areas and to undertake postnatal care and marital counselling at the same time.

Knowledge of rural conditions in inter-war Romania was greatly enhanced by ethnographers and geographers, but most of all by the sociologists because study of the cultural history became a patriotic duty - justifying the newly established frontiers of Greater Romania – and Gusti's 'Bucharest School' attracted committed researchers on the basis of generous state support. The nationalist project sought spiritual as well as political and military unification: the regions were to be homogenised through culture. Urban culture was thought to have a foreign origin, hence "the unification strategy viewed the culture of the Romanian village as the only true authentic one, so providing the right model to follow" (Rostas 2000 p.13). The Carpathian areas tend-

ed to be most prominent for summer 'campaigns' which began at Fundul Moldovei (in Bucovina, near Vatra Dornei) in 1928 and then switched to Drăguş (near Braşov) in 1929 where over 100 people attended (Barbat 1944). Later in the 1930s two summers were spent at Şanţ near Rodna, while foreign groups were also employing methods of regional survey, notably the British Le Play Society which undertook two programmes in the 1930s (Fleure & Evans 1939; Fleure & Pelham 1936) that were followed-up in the 1970s (Turnock 1990b; Turnock et al. 1980). The political overtones were particularly strong under the royal dictatorship (1938-40) when all college and university students had to perform voluntary cultural work under a Social Service Act drafted with Gusti's assistance. Predictably Gusti encouraged detailed research, with a focus on 60 representative villages (Georgescu & Chibulcuteanu 1941; Stănculescu & Ştefănescu 1940), gathering statistics on a standardised basis (Table 4) while the politicians wanted to move quickly towards integration, despite the danger of superficial results. But detailed monographs of each village profile – well exemplified by the work of Reţeganul (1942a; 1942b; Reteganul & Zinvalu 1942) and Tiriung (1942; Tiriung & Dundun 1942) - gave way under the influence of A.Golopentia to a focus on change highlighting the dynamics and tensions. Work was largely halted under communism but the record is now being positively evaluated and perpetuated in a modern form. The geographer Ion Conea was also involved in this work, developing a close relationship with Gusti on account of his work at Peleş Castle (Sinaia) educating a hand-picked group of pupils (drawn from different sections of society) studying alongside the young Prince Mihai who both preceded (1927-30) and succeeded (1940-8) his father as king (Turnock 1988). Conea published paper on the contemporary rural geography including a major work on the village of Clopotiva in the Haţeg region (Conea 1940) and made an important contribution to Irimie et al. (1985).

Regional Planning

Despite the anticipation engendered by the Romanian sociologists, there was little formal action and no doubt governments were only too well aware that they lacked the resources for grandiose plans which in any case would always be contested by parliamentarians looking to improve conditions in areas that they represented. The most ambitious schemes came from Poland where plans were first drawn up in 1929 by J.Piłsudski for a rapid expansion of state industry realised in the 1930s. These were followed by priority for growth problems of Upper Silesia and Warsaw contrasting with rural problems of overpopulation, fragmented smallholdings and soil erosion: hence the state investment plan for 1936-40 to focus on backward areas east of Vistula ('Poland B' as distinct from the more developed western territories comprising 'Poland A'). Building on the planning offices recently established in three Carpathian areas seeking a development in tourism, a total of 11 regional planning commissions were set up in 1937 including the Carpathians and a Central Industrial Region: the latter lay adjacent the mountains in the Sandomierz Depression (between Kraków and Lwów) and was endowed with the water resources of the Vistula-San confluence, where the Ministry of Defence was in control with the aim of developing strategic industries in a secure location (Hamilton 1982). There was an aircraft complex at Mielec started in 1938 (with aircraft engine production planned for Rzeszów) and Poland's first synthetic rubber plant was built at Dębica - both located in the Wisloka valley. But Kuliś (2000) explains that the main project was to be located at what became known as Huta Stałowa Wola (1948) where Zakłady Południowe was founded in 1937 with a target population of 50,000 along the main east-west railway on the west bank of the San south of Rozwadów (eventually incorporated into the town in 1973) and first named Zakłady Południowe. Electric steel and aluminium foundries were intended but work stopped after the invasion in 1939 with only 145 houses and three workers' hostels built (for a population of 3,500). The wartime industry was destroyed but urban status was achieved in 1945 and the Six Year Plan envisaged a revival of the complex (renamed Huta Stałowa Wola in 1948) through 1950s and beyond.

In Romania there was no formal status for regions of special concern, but there was certainly a focus on the Apuseni Mountains (with their highly-dispersed settlements) which had already attracted academic study (De Martonne 1922). In the context of eugenics and social science there was an obvious problem of chronic hunger and endemic disease. For long dismissed as vagabonds by the Hungarians (recalling Horea's rebellion in the eighteenth century that naturally inspired quite contrary sentiments among Romanians), these people presented a challenge to the government in terms of basic services only symbolically addressed through the experimental 'plasa sanitară' at Gilău already mentioned. Hence Ciomac & Popa-Necşa (1936) advocated a programme of railway building (Brad-Deva; Cluj-Gilău-Câmpeni; and Hălmagiu-Vaşcău) to open up the area, along with road improvements (including new roads for Albac-Bălceşti; Câmpeni-Scărişoara and Hălmagiu-Vidra) plus a network of cereal depots and efforts for further commercialisation of the economy: quality farm production; cooperatives for woodcutting and sawmilling: and the training of skilled workers at Câmpeni's trade school ('şcoala de meşerii') which was then the only one in the country. The response was limited at the time but the priority for rail construction northeastwards from Deva may be seen as a response to the problems of isolation that were increased by the Hungarian frontier imposed in 1940 just south of the Cluj-Oradea axis. The area continued to attract academic study: notably by L.Apolzan whose work in the 1940s was delayed in publication until 1987. Meanwhile the Romanian government was preoccupied with other isolated regions: as already noted Maramureş lacked direct rail communication and transit routes through Czechoslovak and Polish territory were negotiated as a stop-gap until the mixed standard/narrow guage line Salva-Moisei was realised in 1940. And the isolation of Caraş county in the southwest added to the case for the Caransebeş-Reşiţa railway project of 1938 along with another project nearer the Danube from Iablaniţa via Moldova to Răcajdia (south of Oraviţa) whuch has never been implemented. In Czechoslovakia the isolation of the Transcarpathia region was addressed through

Table 4 ***Representative Romanian Villages: '60 Sate Românești'***

Village	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MOUNTAINS														
Bucşoaia	1238	89	2630	22.7	25.8	40.5	11.0	284	25.7	4.36	46.4	46.4	4.6	2.6
Corbeni	894	79	5694	5.4	32.5	55.5	6.6	189	31.7	4.73	13.9	68.4	11.3	6.4
Costeni	668	31	312	69.4	2.8	16.2	11.6	159	22.9	4.20	10.4	86.0	3.0	0.6
Drăguş	1459	54	3883	40.3	31.8	17.9	10.0-	323	27.2	4.52	10.4	16.3	50.8	22.5
Gurasada	553	50	1287	53.8	7.2	35.7	3.3	178	6.8	3.11	17.3	68.7	9.2	4.8
Gura Teghii	1002	54	1606	39.3	27.7	29.8	3.2	270	15.6	3.71	31.3	60.3	5.3	3.1
Gura Văii	1637	108	1855	63.7	21.7	8.7	5.9	426	17.6	3.84	14.2	69.9	11.5	4.4
L.Calnicului	685	16	315	82.6	16.4	1.0	0.0	151	30.1	4.54	5.9	84.6	6.9	2.6
Măru	1489	57	1765	n.a.	n.a.	n.a.	n.a.	334	27.9	4.46	20.9	49.0	25.5	4.6
Mocod	946	53	1427	53.4	45.5	1.1	*	224	22.0	4.15	3.9	51.8	32.6	11.7
Nepos	1452	57	1882	85.9	9.4	2.4	2.3	n.a.	n.a.	n.a.	8.9	63.0	23.0	5.1
Trăisteni	1672	60	2123	18.8	77.2	0.8	3.2	363	32.9	4.61	21.0	77.8	1.2	0.0
Vărfurile	1139	61	2324	56.8	41.8	1,4	*	265	22.7	4.30	3.3	81.4	12.9	2.4
LOWLANDS														
Beregsău Mare	1121	74	1714	93.8	0.5	0.0	5.7	310	12.3	3.62	16.8	40.6	27.0	15.6
Bogaţi	3942	180	3223	64.3	2.2	27.1	6.4	1014	16.8	3.89	25.2	66.7	5.4	2.7
Brătuleşti	1784	66	813	98.4	0.0	0.2	1.4	397	29.8	44.9	10.9	80.9	6.8	1.4
Căianu Mic	1160	76	1249	79.1	0.2	20.0	0.7	274	24.9	4.23	11.7	67.9	13.5	6.9
Cârligele	1496	133	1537	84.8	0.5	14.4	0.3	353	24.4	4.24	15.2	71.1	9.8	3.9
Chircleni	553	119	1032	99.7	0.0	0.0	0.3	98	49.9	5.64	10.1	10.0	16.2	63.7
Cormaz	1449	56	2570	84.8	4.0	*	11.2	308	31.7	4.70	3.9	25.1	45.6	25.4
Cusuiul din V.	2560	158	7749	96.5	0.5	1.1	1.9	565	30.1	4.53	17.4	45.1	28.4	9.1
Cuvesdia	766	61	1036	87.1	12.9	*	*	184	20.6	4.16	3.3	45.6	42.4	8.7
Dalacheu	1391	72	3732	95.2	0.0	1.0	3.8	303	27.3	4.59	13.1	44.0	22.3	20.6
Dobrun	1195	55	2416	98.3	0.9	0.3	0.5	271	26.2	4.56	6.1	60.8	25.5	7.6
Gen.Averescu	1749	58	2824	99.3	*	0.0	0.7	382	33.6	4.58	6.3	58.1	30.1	5.5
Ignăţei	3897	252	8959	98.4	*	*	1.6	771	39.9	5.05	8.9	31.5	42.7	16.9
Joiţa	1598	115	2929	98.5	0.0	0.1	1.4	228	32.0	4.65	9.1	78.8	10.3	1.8
Muncelu de S.	1773	142	2505	97.9	0.0	2.0	0.1	398	31.0	4.45	11.0	76.4	11.0	1.6
Perieţi	1801	139	4297	89.9	0.0	7.8	2.3	415	28.3	4.34	19.1	39.3	27.4	14.2
Prisăcani	926	69	4307	67.2	27.5	1.3	4.0	201	35.3	4.61	5.2	77.9	14.3	2.6
Răzaurturile	2701	95	4244	87.9	9.6	0.1	2.4	612	28.4	4.41	4.7	59.2	29.9	6.2
Spineni	1361	102	1284	88.1	0.0	8.4	3.5	310	28.6	4.39	8.7	59.9	20.0	11.4
Şepreus	1810	75	7644	86.5	1.4	0.8	1.3	435	21.6	4.16	7.3	59.8	24.7	8.2
Văleni	1908	66	2537	99.9	*	0.0	*	403	35.0	4.73	7.7	33.2	40.3	18.8
Vănucăuti	2761	168	2650	95.5	3.4	*	1.1	642	27.0	4.30	1.7	88.3	9.2	0.8

A *Population;* **B** *Area of village settlement (ha);* **C** *Total area (ha);* **D** *Percentage of land in crops (including permanent crops);* **E** *Ditto grazings/hayfields;* **F** *Ditto woodland;* **G** *Ditto land unused/unusable;* **H** *Number of households;* **I** *Percentage of large households (more than fiver persons);* **J** *Average household size;* **K** *Households with holdings smaller than 0.5ha;* **L** *Ditto 0.5-5.0ha;* **M** *Ditto 5.0-10.0ha;* **N** *Ditto above 10.0ha*

*Location of village (**present** commune – unless the village carries the commune name – and county): Bucşoaia (Frasin, Suceava); Corbeni (Argeş); Costeni (Tismana, Gorj); Drăguş (Vistea, Braşov); Gurasada (Hunedoara); Gura Teghii (Buzău); Gura Văii **Râpile at the time** (Bacău); Lunca Calnicului (Prejmer, Braşov); Măru (Zăvoi, Caraş-Severin); Mocod (Nimigea, Bistriţa-Năsăud); Nepos (Feldru, Bistriţa-Năsăud); Trăisteni (Valea Doftanei, Prahova); Vârfurile (Arad); Beregsau Mare (Săcălaz, Timiş); Bogaţi (Argeş); Brătuleşti (Periş, Ilfov); Căianu Mic (Căianu, Cluj); Cârligele (Vrancea); Chircleni (Balţi)#; Cormaz (Cetatea Alba)#; Cusuiul din Vale (Durostor)#; Cuvesdia (Şiştarovăţ. Arad); Delacheu (Tighina)#; Dobrun (Olt); General Averescu (Ismail)#; Ignăţei (Orhei)#; Joiţa (Ilfov); Muncelu de Sus (Mogoşeşti-Siret, Iaşi); Perieţi (Ialomiţa); Prisăcani (Iaşi); Răzaurturile (Caliacra); Spineni (Olt); Şepreus (Arad); Văleni (Cahul)#; Vănucăuţi (Hotin)#*

*Note: There were 23 mountain villages selected and 37 from the lowlands to make a total of 60, but the 1941 publication quoted gives statistical data for only 13 and 22 respectively (total 37). Other mountain villages in the survey were Bârseşti (Vrancea); Conop (Argeş); Ieud (Maramureş); Jdioara (Criciova, Timiş); Nerej (Vrancea); Poseşti (Prahova); Prigor (Caraş-Severin); Rebrişoara (Bistriţa-Năsăud); Târnava (Brănişca, Hunedoara); Vidra (Alba). Other lowland villages in the survey were: Alioş (Maşloc, Timiş); Banloc (Timiş); Buciumeni (Galaţi); Colibaşi (Cahul)#; Cubureşti (Soroca)#; Dioşti (Dolj); Drăguşeni (Suceava); Flămânzi (Botoşani); Lescoviţa (Naidăş, Caras-Severin); Lozova (Lăpuşna); Naipu (Ghimpaţi, Giurgiu); Peceneaga (Tulcea); Stoiceşti (Banca, Vaslui); Slobozia Sucevei **Slobozia Pruncului at the time** (Grămeşti, Suceava); Valea Cânepii (Unirea, Brăila)*

 # denotes villages outside the present Romanian state

Source: A.Georgescu & I.Chibulcuteanu 1941, 60 sate româneşti: populaţia (Bucharest: Institutul de Ştiinţe Sociale al României)

the belated award of autonomy in 1940 while Slovakia's central trunk railway was a step in the right direction but only after the territory had been lost in 1940.

The German Sphere: Second World War

The period concludes with the Second World War which saw the whole mountain region unified in a sense through its integration with the German war machine as totalitarian facism was either imposed directly through incorporation into Hitler's Grossdeutschland (like the the Polish 'Generalgovernment') or adopted as the new norm by Germany's allies which included Hungary, Romania and Slovakia. The political map of the Carpathians changed quite drastically. While the northern edge remained Polish, albeit under German occupation through the Generalgovernment, the collapse of Czechoslovakia resulted in new client state in Slovakia with the easternmost Subcarpathian territory restored to Hungary. Meanwhile, as a result of Hitler's Vienna arbitration northern Transylvania was returned to Hungary in 1940 and thus - along with adjacent territory from Czechoslovakia and a border strip obtained in southern Slovakia – a good deal of her historic Carpathian territory was temporarily regained. There was also a minor change in the Tatra mountains through the transfer of Polish Spisz (the Slovak areas of Jablonka and Łapse) to Slovakia in 1939. The whole territory was seen as a resource for Germany's development and more specifically the Axis war effort, though the idea of an extensive 'colonial' appendage complementary to integral German territory i.e a 'Grossraumwirtschaft' had distant origins in J.G. Fichte's concept of 1800, revised in F.Naumann's work on 'Mitteleuropa' in 1918. And Hitler had in mind a vast 'Pan Region' covering Europe and Africa (separate from the Americas and East Asia) with Germany as the 'Kernland' or directing centre. The strategy was launched in 1934 by offering the marchland states what was in effect a guaranteed market with stimulative prices (provided the proceeds were spent on German goods); seeking to develop vested interests that would take over those countries without war. Progress was sporadic at first but there was support from the German ethnic population dispersed across the region and a community of interest was greatly encouraged by rearmament and the Nazi absorption of the Czech Lands in 1939.

However Germany remained the centre of production and the realities of war made little difference, despite the considerable manufacturing capacities available in the wider region, for conditions in the east became quite chaotic and some investments were largely ineffective e.g. armaments production in Poland; while SS control of such Polish industries as building materials, glass and textiles gave rise to conflicts between economic and racial policies. By contrast infrastructure in Germany was good, while security and supervision posed relatively few problems; although large numbers of foreign workers – and vast amounts of food – had to be brought in while the munitions also had to be transported over long distances to the eastern front. The ambition of a three-metre gauge electrified system capable of moving 10,000t freights at 100km/h on such routes as Hamburg-Saigon and Helsinki-Central Africa – that would have used the northeastern flank of the Carpathians (Petculescu 1943) – could not be implemented under war conditions. But some standardisation of steam traction was secured by the construction of 6,700 'Kriegslokomotiven': economising on steel and non-ferrous metals while achieving a low axle weight (15t) appropriate for rough track plus the versatility to cope with sharp curves. In the Carpathian theatre the route through Upper Silesia and on to Kraków and Lwów (Lviv) was of prime importance and there was common ground between the Germans and Slovaks over the central main line already referred to. Meanwhile the road system was reorganised to create a network of north-south and west-east through roads: 'Durchgangstrassen' or DGSTR (Table 5) which provided a coherent network across Grossdeutschland, extended at a greatly reduced density into allied and occupied territories. Although no new construction was involved it would appear that the DGSTR

Table 5 ***'Durchgangstrassen' in the Carpathians***

WEST-EAST ROUTES
A: Jungbunzlau(Mladá Boleslav)-Königgratz(Hradec Králové)-Neisse(Nysa) -Kattowitz (Katowice) -Krakau(Kraków)–Tarnów–Przemyśl-Lemberg (Lvív);
B: Prag(Prague)-Schönberg(Šumperk)-Mähr.Ostrau(Ostrava)–Wadowice–Neu-Sandez(Nowy Sącz) –Krosno-Sanok;
C: Brünn(Brno)–Kungwitz(Uherský Brod)-Trentschin(Trenčín)-Sillein(Žilina)-Rosenberg- (Ružomberok)–Prešov-Kaschau(Košice)–Michalovce-Ungvar(Uzhorod)-Munkasch (Mukacevo)– Máramarossziget(Sighet)-Botoşani;
D:Pressburg(Bratislava)-Tynau(Trnava)-Losonc(Lučenec)–Miskolc–Nyiregyháza–Debrecen-Gross wardein (Oradea) also with a link Budapest-Klausenburg(Cluj –Dej-Huşi;
E: Pressburg – Budapest – Szeged –Arad – Deva – Sebeş - Piteşti
NORTH-SOUTH ROUTES
F: Königsberg(Kaliningrad)–Warschau(Warsaw)-Lublin-Lemberg-Munkasch-Szatmárnémeti(Satu Mare)-Dej-Klausenburg-Sebeş-Ploieşti;
G: Warshau-Radom-Dukla-Prešov-Kaschau-Miskolc-Nyiregyháza-Debrecen-Grosswardein-Arad-Belgrad(Belgrade);
H: Elbing (Elbląg)-Litsmannstadt(Łódz)-Tchenstockau(Częstochowa)-Sosonowitz(Sosnowiec)-Wadowice-Rosenberg-Altsöhl (Zvolen)-Losonc-Budapest-Belgrad;
I: Danzig(Gdańsk)-Thorn(Toruń)-Gleiwitz(Gliwice)-Čadca-Sillein-Prievidza-Heiligenkreutz(Žiar n. Hronom)–Leva (Levice)-Esztergom-Budapest;
J: Gotenhafen(Gdynia)-Bromberg(Bydgoszcz)-Oppeln(Opole)-Ratibor(Razibórc)–Mähr.Ostrau– Trentschin-Tynau,

Source: Durchgangstrassen: Bild Ostdeutschland 1941

network had priority where maintenance was concerned and some substantial development was certainly envisaged over the longer term e.g. the route from Prague to Mähr. Ostrau (Ostrava), Salzberg (Bochnia), Przemyśl and Lemberg (Lviv). But a reasonably regular pattern in the lowlands became greatly distorted in the mountains where the north-south routes (G), (H) and (I) were bunched together in places; with (H) at Zvolen almost touching (I) at Žiar nad Hronom while (G) was far to the east at Košice. The west-east routes logically followed the Tisza valley from the central Slovak corridor (C), the Criş (D) and Mureş (E) while (A) followed the northern edge of the Carpathians and (B) the Subcarpathian route through Nowy Sącz that was only a short distance to the south. No major new roads were evidently contemplated east of the Breslau-Brünn-Wien autobahn nor any new district project like the Sudeten highway that was partially completed between Neustadt (east of Zittau) and Romerstadt east of Mähr.Schönberg – although several major railway projects were in hand (quite apart from Hitler's broad gauge conception for the Carpathian northern margin)

Some new projects outside Grossdeutschland were supported, although it is doubtful if there was a net gain in investment when funding from Germany was balanced against deterioration. Slovakia gained from the establishment of branch factories by leading Czech armaments manufacturers: Česká Zbrojovka Brno (CZB) located not only at Uherský Brod in the White Carpathians but also in the Váh valley of Slovakia at Považska Bystrica while Škoda arrived at Dubnica n. Váhom. Energy was provided through lignite in the Nitra valley fuelling the power station of Zemianske Kostaľany south of Nováky, while synthetic oil using the Fischer-Tropsch process was produced at Bratislava. The war also gave Slovakia an opportunity to push ahead with its railway development since national interests in east-west axial routes coincided with the German interest in better transit capacity between Vienna and Ukraine via Bratislava and Košice. Little was actually achieved although, following the completion of the central trunk from Trenčín to Košice, construction continued eastwards between Prešov and Humenné through the Kapušany-Strážske line of 1943 – a route considered to be of great importance to Slovakia and Germany. Along the southern border it was intended to link Brezno with Košice through Slavošovce and thence through connections with other branch lines (Revúca-Tisovec, Štitnic-Nižna Staná and Rožňava-Turňa). But none of this work was implemented at the time (though the Rožňava-Turňa section was completed in 1955 to supply minerals to Košice). In the north it was planned to link Brezno with Králová Lehota, to connect the end of the Podolínec branch with Bardejov and continue parallel to the Polish frontier but only the Podolínec-Plaveć link was built (though not until 1966). Another abortive proposal aimed at connecting branch lines to provide a direct link from Bratislava through Jáblonica to Myjava (on the Slovak-Moravian link of 1929 between Nové Mesto n.Vahom and Veselí n.Morava).

The Romanian state strengthened its defences with a programme for strategic industries which included state support for rearmament through the Socomet cartel after 1936 (including the Concordia munitions plant located between Bucharest and Braşov). But in the aftermath of depression the German embrace proved irresistible and his attempts to maintain independence through his style of 'monarcho-fascism' was gravely weakened by events in Czechoslovakia in 1939 because of Československá Zbrojovka's one fifth interest in the Romanian munitions company 'Uzinele Copşa Mică şi Cugir' (UCMC) controlled in the 1920s by Vickers, plus a tenth of the Reşiţa metallurgical and engineering company: hence the German takeover of Czech interests 'dealt a death blow to Romanian efforts at maintaining its military forces outside the German orbit' (Lampe & Jackson 1982, p.518). Carol II's independent position collapsed disastrously in 1940 when Romania was obliged to cede northern Transylvania to Hungary under Hitler's Vienna 'Diktat' while the Soviets demanded northern Bukovina and Bessarabia (plus the Herta district of Moldavia) and Bulgaria regained the Dobrogea territory she had lost in 1913. The king abdicated in favour of his son Mihai and went into exile whereupon a new government headed by Marshall Antonescu operated in such close liaison with the Central Powers that he has been seen as 'the third man of the Axis'. While German economic assistance was hardly overwhelming a technical agreement with the conglomerate Reichswerke Hermann Göring (RHG) provided for German commercial and technical management of the Carpathian metallurgical plants (Hunedoara and Reşiţa) through the Rogifer organisation which also forged a link with the Malaxa engineering complex in Bucharest as the principal Romania partner of RHG. In this way the Romanian metallurgical industry gained a new rolling mill and Siemens-Martin furnaces. Industria Aeronautică Română Braşov was controlled by a RHG subsidiary and retooled to produce Messerschmidt fighters in 1943. The Germans were not keen on armaments production in Romania although UCMC manufactured artillery and small arms, while Avrig near Sibiu was concerned with shell filling and transport equipment. But when Romania began to use methane gas as a raw material for the chemical industry, the Germans eventually supported the trend as a useful contribution to the war effort and the advantage of having a source of explosives close to the southeastern front was strong enough to overrule arguments against dispersal of German technology. Production of formaldehyde (needed for synthetic resins and explosives) began at Copşa Mică in 1940 and – when the advantage of having a large chemical industry close to the eastern front was quite irresistible provided that appropriate air defences could be installed – the Nitramonia plant was opened at Făgăraş in 1942 to produce ammonia and explosives. A further plant was started nearby at Ucea de Sus (in a somewhat remoter, forested area to the southwest) and supported by Germany as a means of bringing the production of munitions closer to the eastern front, but supplies of German equipment were cut off by the coup in Romania in 1944 and the works was then built to serve peacetime needs and opened in the 1950s with the name Victoria. More widespread use of gas was envisaged through a pipeline to Braşov and Bucharest which, again, was not achieved until after the war. There was also great German interest in the Romanian oilfields, albeit in the context of Romanian insistence on processing

within the country; thus giving rise to substantial air defences to protect the refining complex of 'Fortess Ploieşti' from enemy bombers operating out of North Africa and maintain the flow of exports to Germany. In 1942 Berlin secured the right to explore entire geological structures in 1942 (reserved for the Romanian state under the 1937 Mining Law) although further prospecting was most disappointing. Ores were generally processed at source although it is reported that some concentrate from Borşa (part of the Baia Mare complex) was sent to Germany by the Hungarian authorities). In the forestry section the Reşiţa wood distillation project and its special transport arrangements has already been mentioned, but it should also be noted that CAPS negotiated with Germany in 1939 to establish a joint company with Deutsche Forstung Holzwirtschaftsgesellschaft which covered 34,000ha in the Pipirig-Râsca-Târgu Neamţ area of the Eastern Carpathians (subsequently taken over by the USSR after the war as the basis of a new Soviet-Romanian joint company Sovromlemn).

As for the rural population there is only limited evidence to draw on although it may be assumed that there was pressure to maximise food production and to exploit all available labour resources through military service or other work supporting the war effort; all particularly burdensome for those who could not identify with the patriotism of the relevant authorities. As Kaluski (1999) points out, the territorial change in the Tatra was greatly resented by the Polish population although the Slovaks tried to be reasonable by offering a good rate of exchange for Polish currency (and when these areas were restored to Poland in 1945 the Slovaks then felt marginalised by a poor infrastructure although this may not have been a deliberate policy). Yet this was a minor matter in the wider picture of disaster that faced the mountain people under Axis domination. The outstanding event was the destruction of the Jewish communities in Hungary and Poland reaching a climax in 1944. There had been a thriving network of (mostly Hassidic) Jewish religious communities in Polish territory, as at Bobowa, Dynów, Rymanów and Stary Sącz, while there were also Jews in the Transylvanian towns and in the villages of Maramureş. But Jews were also prominent in a string of towns on the northern edge of the Carpathians with estimates of below 30% in Bielsko-Biała, Kraków, Przemyśl and Focşani, rising to 30-40% - Bacău, Cernivci and Piatra Neamţ - and over 40% in Tarnów, Ivan-Frankivsk, Kołomyja and Suceava; with the largest communities in absolute terns in Cernivci (22,000), Kołomyja (17,000); Ivan-Frankivsk (14,000) Przemyśl (13,000) and Tarnów (12,000). Jews were less numerous on the inner side of the mountain arc with larger German communities to handle the economy: as in Slovakia at Kremnitz (Kremnica), Kežmarok (Käsmark) and Levoča (Leutschau); and in Transylvania at Braşov (Kronstadt) and Sibiu (Hermannstdt). Jews nevertheless accounted for 10-30% at Košice, Prešov, Muckachevo, Sighet and Uzhhorod. The war was of course catastrophic for the Jews with an inhumane forced labour regime in 1942 and the ghetto policy in 1944 which in north Transylvania highlighted the county centres and other important towns like Carei, Reghin and Şimleu Silvaniei; making use of any suitable premises such a brick factories, but at Dej the Jews were kept in a forest in the open before deportations to Auschwitz.

However the Jews were not the only sufferers since German reliance on Ukrainian elements in their invasion of the USSR resulted in the persecution of Poles by the Ukrainian forces (with which the Lemko population became unfairly implicated) with consequent suffering as victims of subsequent Polish efforts - under the Vistula operation - to cleanse their (revised) territory of these elements. And the fascist authorities certainly entertained draconian measures to deal with other ethnic issues e.g. the proposed colonisaton of Moravia as a German corridor connecting Austria and Silesia. It is to be assumed that Budapest would have had plans to ensure clear Magyar majorities in the newly-regained Carpathian territories. Indeed there were major expulsions of Romanians in 1940 which seemed geared to creating Magyar majority zones in the Cluj and Oradea areas (but also in Baia Mare, Carei. Dej, Gherla, Sighet and Zalău) closest to the border. But thereafter, despite rumours of further resettlement, the priority lay in maximum exploitation of labour resources (especially males of 20-60 years of age) for the war effort, with many local excesses documented by eye witness reports by Faţu & Muşat (1986, pp.176-94). While communist sympathisers and partisans were understandable targets of Horthy government – like the saboteurs who managed to cause considerable damage in the Baia Mare mining zone – there was also much oppression as land reform was put into reverse and Romanian cultural symbols were destroyed including a number of churches.

The Jews and 'nationalities' were not recruited into the armed forces but were drafted into forced labour early in the war with many sent to concentration camps linked with canal and drainage schemes on the Hungarian plain (especially along the Curtici-Budapest railway) while Jews were sent on 'front line support' in Ukraine: effectively a death sentence before the 'final solution' in 1944. Although some people remember the local authorities as generally 'correct', labour demands became more burdensome during 1942-1944 when many people were coerced into signing engagement contracts for ranch and forestry work in Germany, with the Romanians singled out in mixed communities. Male labour was required partly in Transylvania on construction, fortification and logging, including the carting of raw timber to railway stations, while the women were recruited for farm work from 1943. But tehre was also building and mining work in Hungary proper – the Budapest area but also at Ajka, Diósgyőr, Dorog and Várpalota – where the workers suffered from poor living conditions and military discipline. Villages were thus emptied of the majority population and rural work was undermined through long absences. Moreover the Hungarian army was guilty of many brutal excesses at the start of the occupation and also in the months after the Romanian coup of 23 August 1944 which turned northern Transylvania into a theatre of war (Faţu & Muşat 1986, pp.176-94).There were executions during the Romanian/Soviet assault on Oradea and also a massacre in the Moisei/Borşa area of Maramureş through execution of some 30 camp inmates at Vişeu de Sus (held by the authorities for various irregularities including escape

from forced labour squads) of which the retreating Hungarian forces wanted to remove all trace (Ibid pp.281-91).

Conclusion

The study has covered a period when the Carpathian region was reorganised on the basis of nation states which had to seek security and economic viability with new frontiers (with particular tensions between Hungary and the successor states) and without the safety valve of emigration. There was a central nexus concerned with population growth – for national security – and increased subsistence pressures demanding growth in non-agricultural employment. This was in itself essential for state security though manufacturing and infrastructure but it was also highly costly and raised the controversial issue of foreign investment, as in Romania. It was a period with much nationally-inspired research on the peasant way of life even though there was also an element of 'crisis' so keenly spotted by the Le Play Society in their study of Corbu in the Eastern Carpathians of Romania: hence the expectation of greater interdependence between the villages and the market towns, with perceived threats to social and economic life with the erosion of self-sufficiency through 'the insidious influence of the journeyman'. Revolutionary communist policies were of course totally inconceivable at the time, although the Second World War years saw substantial mobilisation of the rural population – and with considerable coercion as the evidence from northern Transylvania testifies. Hence the Carpathians witnessed a transition towards ideas of modernity – involving a diversified economy based on an improved infrastructure for transport and energy – conveying a sense of 'time expired' for a traditional peasant economy initially bolstered by land reform measures and a continuing sense of 'distance' from large towns (except in islands of modernity created in the railway age). Although the nation states embraced democracy, reflecting the influence of Western Euriope in the post-1918 political settlement, the politics of national security combined with rural poverty and overpopulation dominated the 1930s and contributed to the search for authoritarian solutions under the German umbrella, which in some limited respects anticipated the more radical Soviet model that would imposed after the Second World War.

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