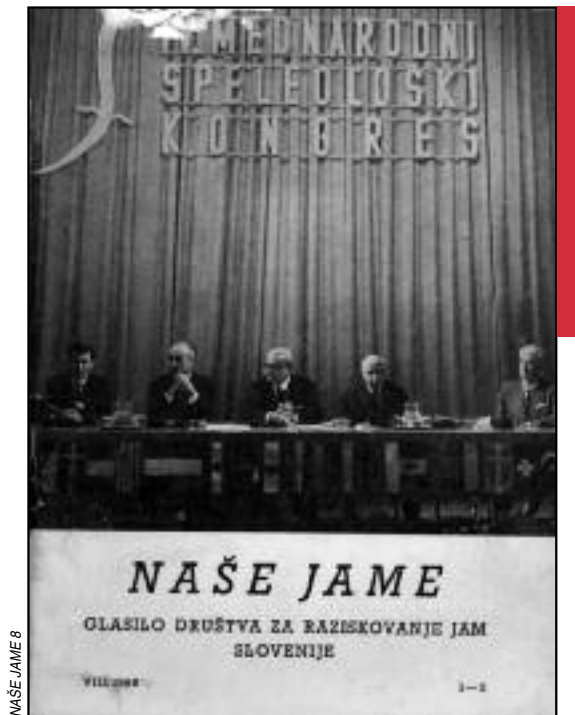


IVAN GAMS – KARSTOLOGIST

IVAN GAMS – KRASOSLOVEC

Andrej Kranjc



Ivan Gams (first from left) was active in organising the International speleological conference.

Ivan Gams (prvi z leve) je bil aktiven udeleženeec 4. Mednarodnega speleološkega kongresa.

Ivan Gams – karstologist

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ABSTRACT: Academician Ivan Gams is Slovenia's best known researcher of karst and the most prolific author of works on karst. During his first job at the Institute of Geography of the Slovenian Academy of Sciences and Arts, he started researching the karst surface and underground. He published several in-depth publications on karst caves, the most well-known being the studies of the shaft Triglavsko brezno in the 1960's. Right from the beginning, he focused on issues to which he then dedicated more or less his whole life – and which were also widely recognized by professional public both at home and abroad –, namely corrosion intensity determined by the hardness of water and the discharges of karst rivers and springs, and the method of limestone tablets. Within the geomorphology of karst, Gams was mostly dealing with the karst polje, especially its definition and evolution.

KEY WORDS: karstology, corrosion, karst geomorphology, speleology, limestone tablets, karst polje, Ivan Gams

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1 Introduction

Without doubt, professor Gams is one of the most well-known Slovenian researchers of karst both on the national and international level, as well as our most prolific author of scientific, professional and popular articles on karst, physical geography (Komac and Zorn 2013), regional geography (Perko 2013), and many other geographica branches (Kladnik 2013). As a geographer, he was focused mostly on physical geography but was interested in other branches of geography as well, particularly in the distinct landscape of Slovenia – karst. However, he was not or did not remain only a researcher of the regional geography of karst but instead set himself to examine karst from the theoretical point of view and became a karstologist in the widest sense of the word. Unfortunately neither his expert publications nor his personal records do not indicate where, how and why he became interested in karst – had he been attracted to karst already during his school years or did it become his professional focus, his expert »niche« later when he evolved as a talented young geographer.

2 Ivan Gams and karstology

After having graduated in 1951, he got his first job at the Institute of Geography of the Slovenian Academy of Sciences and Arts and wrote his first articles on karst, i.e. four reviews of Yugoslavian books dealing with karst. During his employment at the Institute of Geography, he published about 50 articles on karst, half of them dealing with the karst underground and the other half focused on its surface or karst as a whole. This research indicated the beginning of Gams's research of karst processes on the surface and underground, and particularly its basic factor, i.e. corrosion. Since examinations of the karst underground require certain rather demanding technical skills, Gams decided to join the Cave Exploration Society (DZRJ). Soon, he became a skilled and experienced caver, proved by his research of shaft Pugljevo brezno – which was at the time the deepest shaft in the Slovenian region of Dolenjska (1959) –, cave Dvatisoča jama (1960), shaft Brezno pod Grudnom (1961) and the initial observations of shaft Triglavsko brezno (1957). In 1956, cavers from Ljubljana reenabled the cave laboratory in Podpeška jama where Gams first applied his »tablet test« and thus initiated the Slovenian research of the erosion-corrosion relation in karst areas. Over the years, the test was upgraded into the »tablet method« that is now being used all over the world. This period was also largely marked by the first explorations of karst morphology, especially on karst poljes as indicated in the comprehensive study of karst polje Globodol (Gams 1959). Gams became a member of the DZRJ's committee as early as in 1951 and was thus the first committee member of the younger generation, the only one who had not joined it before the 2nd World War.

One of the biographical accounts on Ivan Gams (Anon 1998) states briefly: "... because he was engaged in the studies of karst as well, he started working at the Karst Research Institute of the Slovenian Academy of Sciences and Arts in Postojna in 1962 and remained there until 1966. His enthusiasm and growing expertise in speleology can be seen from the fact that in 1962, he became the president of the revived caving organisation, the Cave Exploration Society of Slovenia, which was of federal nature (and was later renamed to Speleological Association of Slovenia), and focused his efforts on reorganising and strengthening the society. That period was definitely his most active as far as his involvement in speleology is concerned, both from the organisational and research point of view. His important contribution to the successful organisation of the 4th International Congress of Speleology should be mentioned here as well. He was a member of the organising committee, a member of the secretariat and the chairman of the programming committee. In fact, it was on Gams's initiative that the International Union of Speleology was founded during this congress. In addition, he became a member (and from 1977 the chairman) of the Union's committee on karst denudation. On a more personal note – it was during my membership in this committee under Gams's chairmanship that my own professional career started developing towards speleology and karstology. One of Gams's biggest speleological achievements was the expedition to shaft Triglavsko brezno in 1962, the so-called »Action Bottom« which was the biggest caving action so far in Slovenia as far as the number of participants, the amount of equipment and the extent of radio and newspaper coverage are concerned. During his five-year position at the Karst Research Institute in Postojna, Gams published about 40 substantial articles, assessments and reports – discussions excluded –, including 18 original scientific articles. Although these articles were published in professional journals, many of them were thorough and



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Figure 1: The »from smallest to largest« principle applies to the studies of corrosive forms as well – this is how Gams initiated the measurements of grooves (Zvečava, Herzegovina).

comprehensive enough to be labelled as monographs. Namely, five of them have more than 50 pages, whereas the articles on cave Logarček and corrosion factors have as many as 77 and 57 pages respectively – both were published in *Acta carsologica*, the journal of the Postojna institute. At that time, karst research had been gradually separated into several main directions that Gams was focused on his long career: karst geomorphology and hydrology, karstification processes (especially corrosion), cave exploration and karst terminology.

In 1966, Gams became an associate of the university Institute for Geography and later in the same year, he was appointed associate professor of physical geography at the Department of Geography of the Faculty of Arts, University of Ljubljana. Already during his first year of teaching, he dedicated a large part of his geomorphological lectures to karst, whereas later on, he established a separate new course named Karst geography. During his years at the university and afterwards, when he retired, his bibliography consisted of approximately 170 publications focusing on karst. Why »approximately«? Because Gams was a distinctly »complex« geographer – to use academician Ilešič's term – who adopted a broad approach towards examining the landscape and its processes, it is sometimes difficult to distinguish whether a certain publication is dealing with karst or some other topic. One of such examples is certainly his regional of physical-geographical description of Bela krajina (Gams 1961). His definition of more in-depth topics is similar: corrosion and flowstone deposition are opposite but nevertheless mutually connected phenomena – rock dissolution above the cave and deposition of flowstone in the cave. Grooves are surface (micro) forms caused by corrosion. This is just to illustrate Gams's broad view of geography, physical geography and karstology. His last article on the development of subcutaneous karst in the region of Bela krajina was published in 2011 in *Acta carsologica*, the same journal that – years earlier – published one of his first substantial articles on karst, the study of karst spring Mitoštica (Gams 1955).

3 The main karstological publications of Ivan Gams

Gams's interest in karst and the results of his research are clearly evident from his publications which I tried to divide into several groups as indicated below. Most of his papers (50) were focused on the geo-



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Figure 2: Gams measured the hardness of karst waters – oversaturation causes tuff deposits on the surface (waterfall Kravica on river Trebižat, Herzegovina).

morphology of karst, including the prevailing topic of corrosion (limestone dissolution) and the studies of karst poljes. Karst is not only on the surface, but includes the underground as well, and Gams was determined to give the underground its equally fair share of attention. Among almost 40 of his papers with speleological content, most were dealing with stalactites/stalagmites and flowstone, i.e. their deposition, forms, age and preservation. Other articles focus on more specific speleological topics such as descriptions and general studies of caves – their size, form and origin. A significant share of publications covers cave climate/microclimate. With regards to the amount of published content, Gams's research into the hydrology of karst should be mentioned as well. However, the mere number of publications is not always a proper criterion: in order to prepare the 50-page research paper on the hydrology of the territory between Postojna Polje, Planina Polje and Cerknica Polje (Gams 1966), a considerably higher number of observations and measurements were required and more extensive literature and referential searches had to be made than for the description of e.g. cave Dvatisočja jama, regardless of its thoroughness and importance. He wrote only four publications on karst terminology but nevertheless, his contributions to this area are far from insignificant as I will soon explain. As a geographer, Gams wanted to include people in his research of karst as well. He wrote as many as 17 articles on the connection between the man and karst, their mutual influence and the consequences of human activities on the karst environment.

Although it requires some skill to identify Gams's published works on karst, it is even more difficult to evaluate them, i.e. evaluate their importance in both the national and the international scientific community, among karstologists and geographers. Most of Gams's works on karst were published at the time when bibliometrics was not in use yet and most of the authors citing Gams's publications are from that period as well. According to SICRIS, the Slovenian Current Research Information System, Gams's works received 52 citations between 1998 and 2013. This of course does say something, but it says more about the fact that the currently most prolific researchers do not cite older publications, e.g. Gams's works from the 1960s or 1970s, very often. In addition, it shows that Gams's works were cited in books, papers and journals not covered by bibliometrics which even nowadays remains the downside of this particular set of methods – as far as karstology is concerned. The first edition of *Karst Geomorphology and Hydrology*



Figure 3: Karst poljes were Gams's favourite karst surface shapes (Dabarsko polje, Herzegovina).

by Ford and Williams, – known as the »bible of karstology« –, published in 1989, contained 11 citations of Gams's works, whereas the latest edition, published in 2007, contains 15 citations. Thus, not only does the fundamental work on karstology contain the highest number of Gams's works among of all Slovenian and Yugoslavian karstologists, it also cites only a few authors as frequently as it does Gams. Gams is therefore one of the most frequently cited authors on the subject of karst worldwide.

4 Conclusion

According to my own casual knowledge, information shared by lecturers on professional meetings and an unsystematic review of Gams's citations in various types of literature, his most important achievements regarding karstology can be defined as follows:

- determination of corrosion intensity based the measurements of water hardness and the discharges of karst springs and karst rivers. The measurements and studies that Gams performed were a novelty both in Slovenia and abroad. This method was implemented by the French karstologist J. Corbel. It is possible that Gams got to know it better through one of Corbel's students, the distinguished Polish karstologist M. Puline who also visited Gams in Slovenia and stayed here for a longer period of time in order to do some studying and research. Gams's work in this area was distinguished and met with a wide response, including a proposal put forward at one of the professional meetings saying that a project should be launched with the same goal, using the »Gams approach« or the »Gams method« (Sarin et al. 1997).
- Identification and comparison of intensity by means of limestone tablets, a method which Gams had applied to initiate his first measurements in cave Podpeška jama already in 1959 (Gams 1959a). This method proved particularly suitable for the comparison of karstification processes in various parts of the world and in various climate zones, which stimulated karstologists from almost all over the world to start using this method and it has remained in use until today (Gams 1985; Ivanov et al. 1983; Jennings 1977).



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Figure 4: Gams contributed to the Slovenian terminology of tropical karst as well: cone, tower (Yangshuo, Guangxi, China).

- The third – although not by importance – is Gams's contribution to the geomorphology of karst, especially his research of karst poljes. Though it was not widely accepted, his definition of a karst polje was definitely known all over the world (Gams 1978). His other studies and publications dealing with karst poljes are no less significant and recognized. However, it surprises me that his thesis on the two-phase development of karst poljes (Gams 1973), substantially supported by field research on our karst poljes, did not receive a wider recognition and is not being considered in other studies of this particular topic. Especially since it is not only about Slovenian karst poljes but – and I can say this from my own experience – because such development is even more distinctly evident on karst poljes in Dinaric karst outside of Slovenia. Perhaps this is because this article was published quite a while ago (1973) when literature and references still had to be retrieved »manually«, or perhaps it is because it was published in German (at the time, English was not as dominant as it is nowadays), or because the journal it was published in (*Erkundliches Wissen*) was not so well-known by researchers of the Dinaric karst.

However, Gams's contribution to the Slovenian karst terminology should definitely not be overlooked. His work in this area obviously cannot be as internationally recognized as other topics he dealt with (although it is used as a reference by foreign terminologies, e.g. the most comprehensive terminology compiled by Panoš) (Panoš 2001), but on the national level, his Slovene Karst terminology (Gams 1973a) remains the basic – and more or less the only – reference of this kind.

In Serbia, the collected works of Jovan Cvijić were published in 14 volumes, Croatian celebrated the 100th anniversary of Roglić's birth by publishing his selected works, including a special edition of his work focused on karst ... will we ever publish the collected works of our greatest, internationally acclaimed karstologist in Slovenia as well?

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Ivan Gams – krasoslovec

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IZVLEČEK: Akademik Ivan Gams je najbolj znan slovenski raziskovalec krasa in najbolj plodovit avtor del o krasu. Njegova prva zaposlitev je bila na Inštitutu za geografijo SAZU in takrat se je pričel ukvarjati s strokovnim raziskovanjem kraškega površja in podzemlja. Objavil je več izčrpnih prispevkov o kraških jamah, najbolj odmevne pa so bile raziskave Triglavskega brezna v šestdesetih letih prejšnjega stoletja. Že na začetku se je usmeril v razreševanje vprašanj, s katerimi se je ukvarjal bolj ali manj vse življenje in so bila tako v domači kot svetovni javnosti tudi najbolj odmevna. Prvo je intenzivnost korozije, kar je ugotavljal s pomočjo trdote vode, pretokov kraških rek in izvirov ter z metodo apnenčevih tablet. V okviru geomorfologije krasa pa je največ pozornosti namenil raziskavam kraških polj, še posebej njihovi definiciji in razvoju.

KLJUČNE BESEDE: krasoslovje, korozija, geomorfologija krasa, speleologija, apnenčeve tablete, kraško polje, Ivan Gams

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1 Uvod

Akademik Gams, tako doma kot v svetu gotovo najbolj znani slovenski raziskovalec krasa, je tudi naš najbolj plodovit avtor znanstvenih, strokovnih in poljudnih prispevkov o krasu, fizični geografiji (Komac in Zorn 2013), regionalni geografiji (Perko 2013), in številnih drugih vejah geografije (Kladnik 2013). Kot geograf se je usmeril v fizično geografijo, čeprav so ga zanimale in privlačile tudi druge panoge geografije. Posebej a ga je zanimal kras kot pomembna slovenska pokrajinska značilnost. Ni pa bil ali ostal raziskovalec regionalne geografije krasa, ampak se je krasa lotil tudi s teoretične plati in postal krasoslovec v najširšem pomenu besede. Žal niti iz njegovih strokovnih objav niti iz bolj osebnih zapisov ni mogoče ugotoviti, kdaj, kako in zakaj se je začel zanimati za kras, ali ga je kras privlačeval že kot šolarja ali je postal njegova usmeritev kot strokovna »niša« mladega geografa.

2 Ivan Gams in krasoslovje

Takoj po diplomi leta 1951 se je zaposlil na Inštitutu za geografijo SAZU. Takrat so nastali Gamsovi prvi prispevki s področja krasa, štiri poročila o novih jugoslovanskih knjigah o krasu. V letih na Geografskem inštitutu je objavil okrog 50 prispevkov o krasu, približno polovico o kraškem podzemlju in polovico o kraškem površju ozirom krasu kot celoti. Takratne raziskave so začetek Gamsove usmeritve v raziskovanje kraških procesov na površju in v podzemlju, še posebej korozije kot temeljnega dejavnika kraškega preoblikovanja. Ker je delo v kraškem podzemlju tehnično zahtevno, se je Gams kmalu priključil jamarjem oziroma Društvu za raziskovanje jam (DZRJ). Hitro je postal dober in izkušen jamar, o čemer pričajo raziskave Pugljevca brezna, takrat najglobljšega brezna na Dolenjskem (1959), Dvatisočne jame (1960), Brezna pod Grudnom (1961) ter začetna opazovanja Triglavskega brezna (1957). Leta 1956 so ljubljanski jamarji spet usposobili podzemski laboratorij v Podpeški jami, kjer je Gams v delovni program vključil »poskus s ploščicami«, kar je bil prvi korak pri nas k ugotavljanju odnosa med erozijo in korozijo na krasu. Iz tega je z leti nastala »metoda tablet«, ki jo uporabljajo po vsem svetu. V ta čas spadajo tudi začetki ukvarjanja z morfologijo krasa, še posebej kraških polj, kot priča obsežna razprava o kraškem polju Globodolu (Gams 1959). Že leta 1951 je postal član odbora DZRJ. Bil je prvi odbornik mlajšega rodu, edini, ki ni bil član že pred drugo svetovno vojno.

V enem od biografskih zapisov o Ivanu Gamsu (Anonim 1998) lakonično piše: »... ker se je ukvarjal tudi s krasom je l. 1962 prestopil v Inštitut za raziskovanje krasa SAZU v Postojni...«, kjer je ostal do leta 1966. O njegovi zavzetosti za delo v jamarskih krogih in o strokovnosti v speleologiji priča tudi dejstvo, da je leta 1962 za dve leti postal predsednik prenovljene jamarske organizacije, to je Društva za raziskovanje jam Slovenije (DZRJS), poznejše Jamarske zveze Slovenije. Ob tem se je lotil reorganizacije in utrditve društva zveznega značaja. To obdobje tako z organizacijskega kot raziskovalnega vidika velja za čas njegovega najbolj dejavnega sodelovanja v jamarskih krogih. Naj omenim le njegov bistveni prispevek k uspešni izvedbi IV. mednarodnega speleološkega kongresa. Bil je član organizacijskega odbora, član sekretariata in vodja komisije za program. Na njegovo pobudo je bila na tem kongresu ustanovljena Mednarodna speleološka zveza. Postal je njen član, od leta 1977 pa vodja njene Komisije za preučevanje kraške denudacije. In če sem malo oseben, pod Gamsovim predstojništvom sem bil član te komisije in moja poklicna pot se je usmerila v speleologijo in krasoslovje.

Od speleoloških uspehov bi omenil le odpravo leta 1962 v Triglavsko brezno, imenovano »Akcija Dno«, do takrat in najbrž do danes tako po številu udeležencev kot po količini opreme ter odmevnosti v dnevnem časopisju in na radiu najbolj znanem jamarskem podvigu pri nas. V petih letih dela na inštitutu v Postojni je objavil okrog 40 tehtnejših prispevkov, ocen in poročil, polemik pri tem ne štejem, od tega 18 izvirnih znanstvenih člankov. Ker so objavljeni v revijah, gre za članke, a po obsežnosti bi marsikateremu lahko rekli monografija. Kar pet izmed njih presega 50 strani, prispevek o jami Logarček je na 77 straneh, o faktorjih korozije pa na 57 straneh, oba sta izšla v poročilih postojnskega inštituta Acta carologica. V tem času so se izoblikovale poglavitne raziskovalne smeri raziskovanja krasa, ki se jih je Gams posvečal v svoji dolgi karieri: geomorfologija in hidrologija krasa, procesi zakrasevanja s poudarkom na koroziji, preučevanje jam in kraška terminologija.

Leta 1966 je Gams postal sodelavec univerzitetnega Inštituta za geografijo, še istega leta pa je bil izvoljen za izrednega profesorja fizične geografije na Oddelku za geografijo Filozofske fakultete Univerze

v Ljubljani. Že prvo leto je v predavanja o geomorfologiji vključil obsežen seznam del, posvečen krasu, pozneje pa je kras kot Geografija krasa postal samostojen predmet. V letih na univerzi in pozneje, kot upokojenec, je akademik Gams objavil okrog 170 prispevkov s kraško vsebino. Zakaj »okrog«? Ker je Gams izrazito »kompleksni« geograf, če uporabim izraz akademika Ilesiča, ki ne na pokrajino ne na procese in dogajanja v njej ni gledal ozko, ampak celovito, je včasih težko reči, ali gre pri kaki objavi za kraško ali kako drugo vsebino. Značilen primer je regionalni oziroma fizičnogeografski opis Bele krajine (Gams 1961). Podobno je z opredelitvijo ožje tematike: korozija in odlaganje sige sta sicer nasprotna, a tesno povezana pojava – raztapljanje kamine nad jamo in odlaganje sige v njej. Žlebiči so površinska mikroreliefna oblika, a so posledica korozije (slika 1). To omenjam le v toliko, da je mogoče videti, kako širok je bil Gamsov pogled na geografijo, fizično geografijo in krasoslovje. In njegova zadnja objava o razvoju subkutanega krasa v Beli krajini je izšla leta 2011 v reviji *Acta carsologica*, v isti, kjer je bila objavljena ena od njegovih prvih tehtnejših razprav o krasu, študija o kraškem izviru Mitoščice (Gams 1955).

Slika 1: Tudi za preučevanje korozijskih oblik velja načelo »od najmanjšega k največjemu« – tako je Gams pričel z meritvami žlebičev (Zvečava, Hercegovina).

Glej angleški del prispevka.

3 Poglavitne krasoslovne objave Ivana Gamsa

Gamsovo zanimanje za kras in izsledke njegovih raziskav kažejo njegove objave, ki jih skušam strniti v nekaj skupin. Največ njegovih razprav (50) je posvečenih geomorfologiji krasa. Prevladujejo dela o koroziji (raztapljanju apnenca), pomemben delež zavzemajo tudi študije o kraških poljih. Kras ni le površje, je tudi podzemlje, in temu je Gams namenil enako pozornost kot površju. Med okrog 40 objavami s speleološko vsebino jih je največ posvečenih kapnikom in sigi, procesom njenega odlaganja, oblikam, starosti in ohranjanju (slika 2).

Ostalo so dela z ožjo speleološko tematiko, kot so opisi in splošne študije o jamah, njihovi velikosti, oblikah in nastanku. Pomemben delež imajo tudi dela o jamski klimi oziroma mikroklimi. Glede na število objavljenih del je na tretjem mestu Gamsovo ukvarjanje s hidrologijo krasa. Pri tem moram spomniti, da golo število objav ni vedno ustrezno merilo: za pripravo 50 strani dolge razprave o hidrologiji ozemlja med Postojnskim, Planinskim in Cerknjskim poljem (Gams 1966) je bilo potrebnih veliko več opazovanj, meritev, zbiranja literature in preučevanja, kot pa na primer za opis, čeprav temeljit in tehen, Dvatisočje jame. Terminologiji krasa so sicer namenjena le štiri dela, a zato Gamsovo delo na tem področju ni nepomembno, kot bo videti iz nadaljnjega besedila. Kot geograf Gams tudi pri preučevanju krasa ni mogel mimo človeka. Objav o povezanosti človeka s krasom, njenem medsebojnem vplivu kot tudi posledicah človekovega delovanja na kraško okolje, je kar 17.

Slika 2: Gams je meril trdoto kraških voda – iz prenasičenih se na površju odlaga lehnjak (slap Kravica na reki Trebižat, Hercegovina).

Glej angleški del prispevka.

Še teže kot opredeliti Gamsova objavljena dela o krasu, jih je ovrednotiti, to je opredeliti njihov pomen v okviru domače in mednarodne raziskovalne srenje, predvsem v krogih krasoslovcev in geografov. Večina Gamsovih del o krasu je izšla v času, ko bibliometričnih meril še ni bilo, in tudi avtorji, ki so, oziroma, ki citirajo Gamsova dela, so v večji meri iz tega obdobja. V SICRIS-u je na primer podatek, da so bila Gamsova dela med letoma 1998 in 2013 citirana 52 krat. Ta podatek pove več le o tem, da raziskovalci, ki danes največ pišejo, ne citirajo več toliko starejših objav, na primer Gamsovih del iz šestdesetih ali sedemdesetih let prejšnjega stoletja, povsem pa je prezrto dejstvo, da so Gamsova dela citirana v delih in revijah, ki jih bibliometrija ne upošteva, kar je njena slaba stran za krasoslovje še dandanes. V »krasoslovni bibliji«, to je v Kraški geomorfologiji in hidrologiji avtorjev Forda in Williamsa, je v prvi izdaji (1989) citiranih enajst Gamsovih del, v zadnji (Ford in Williams 2007) pa petnajst. To pomeni, da v tem temeljnem krasoslovnem delu ni samo največ Gamsovih del izmed vseh slovenskih ali jugoslovanskih krasoslovcev, ampak je med stotinami citatov le nekaj avtorjev citiranih tolikokrat kot Gams. To pa je dokaz, da je v svetovnem merilu Gams med najbolj citiranimi avtorji o krasu.

4 Sklep

Kot lahko sodim po bolj površnem lastnem poznavanju, navedbah predavateljev na strokovnih srečanjih in nesistematičnem pregledu Gamsovih citatov v literaturi, so najpomembnejši Gamsovi dosežki v krasoslovju s treh področij:

- Ugotavljanje intenzivnosti korozije na podlagi meritve trdote in pretokov kraških izvirov ter kraških rek. Ko se je Gams lotil teh meritev in raziskav, je bila to novost, ne le pri nas, ampak v svetu nasploh. Vpeljal jo je francoski krasoslovec J. Corbel, Gams pa morda podrobneje spoznal tudi s pomočjo Corbelovega učenca, znanega poljskega krasoslovca M. Puline, ki je bil pri Gamsu dalj časa na študijskem obisku v Sloveniji. Gamsovo delo na tem področju je bilo tako odmevno in cenjeno, da je bil na nekem strokovnem srečanju celo predlagan projekt s tem ciljem, ki naj bi uporabljal »Gamsov pristop« oziroma »Gamsovo metodo« (Sarin s sodelavci 1997).
- Ugotavljanje in primerjanje intenzivnosti zakrasevanja s pomočjo apnenčevih tablet, metoda, na podlagi katere je Gams začel s prvimi meritvami v Podpeški jami že leta 1959 (Gams 1959a). Ta metoda se je kot posebej ustrezna izkazala za primerjavo procesov zakrasevanja v različnih delih sveta in v različnih podnebnih pasovih, kar je tako rekoč po vsem svetu vzpodbudilo raziskovalce krasa, da so jo začeli uporabljati in jo marsikje uporabljajo še danes (Gams 1985; Ivanov s sodelavci 1983; Jennings 1977).
- Tretji, kar ne pomeni, da tretji po pomenu, je Gamsov prispevek h kraški geomorfologiji, še posebej k preučevanju kraških polj (slika 3). Če že ne v celoti sprejeta, je pa gotovo mednarodno najbolj odmevna njegova definicija kraškega polja (Gams 1978). Pomembne in odmevne so tudi druge njegove raziskave in objave o kraških poljih. Preseneča pa me, da njegova teza o dvofaznem razvoju kraških polj (Gams 1973), tehtno podprta s terenskimi raziskavami na naših kraških poljih, ni doživela večjega odmeva in upoštevanja pri preučevanju kraških polj. Posebej, ker ne gre le za kraška polja v Sloveniji, ampak, kot lahko rečem iz lastnih izkušenj, ker tak razvoj še razločneje kažejo kraška polja na dinarskem krasu zunaj Slovenije. Morda je razlog okoliščina, da je članek izšel razmeroma zgodaj, ko je bilo treba objave iskati še »ročno«, morda je temu tako, ker je izšel v nemščini (ampak takrat angleščina še ni tako prevladovala kot danes), morda pa zato, ker revija (*Erdkundliches Wissen*) ni med raziskovalci dinarskega krasa bila pretirano razširjena.

Slika 3: Med površinskimi kraškimi oblikami so Gamsa najbolj privlačila kraška polja (Dabarsko polje, Hercegovina). Glej angleški del prispevka.

Nikakor pa ne moremo mimo Gamsovega prispevka k slovenski kraški terminologiji (slika 4). To njegovo delo sicer ni oziroma niti ne more biti tako mednarodno odmevno (upoštevajo pa ga tuje terminologije, na primer najpopolnejša Panoševa) (Panoš 2001), zato pa je za nas njegova Slovenska kraška terminologija (Gams 1973a) temeljni in bolj ali manj edini vir te vrste.

Slika 4: Svoj delež je Gams prispeval tudi k slovenski terminologiji tropskega krasa: stožec, mogota, stog, stolp (Yangshuo, Guangxi, Kitajska). Glej angleški del prispevka.

V Srbiji so zbrana dela Jovana Cvijića izdali v 14 knjigah, ob stoletnici rojstva Josipa Roglića so Hrvatje med njegovimi izbranimi deli izdali posebno knjigo njegovih prispevkov o krasu – bomo zbrana dela našega največjega, svetovno priznanega krasoslovca dobili tudi Slovenci?

5 Literatura

Glej angleški del prispevka.