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热烈祝贺沈其韩研究员地质生涯 50 周年

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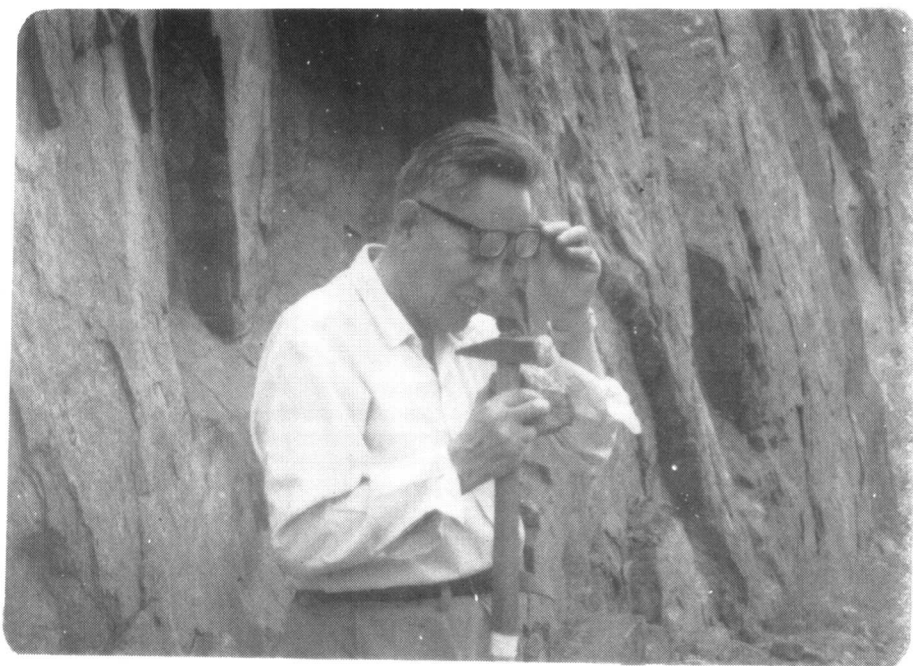
热烈祝贺沈其韩先生地质生涯 50 周年



1986 年，沈其韩所长在所庆 30 周年大会上授奖



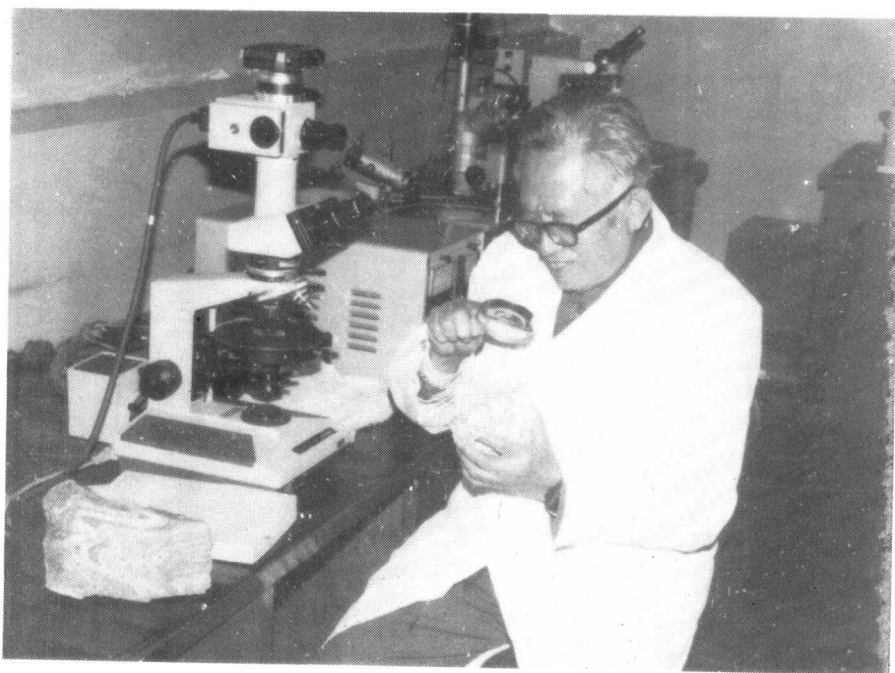
1989 年，在安徽大别山进行野外考察



1991 年，在河北省宣化野外考察太古宙麻粒岩



1992 年，沈其韩研究员和沈永和同志（右侧）
在山东新泰雁翎关共同观察太古宙科马提岩



1992 年，在实验室鉴定标本和薄片



1992 年，在北京撰写论文

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热烈祝贺沈其韩研究员 地质生涯 50 周年

郭 云 麟

(中国地质科学院地质研究所)

1992年, 正值著名岩石学家、前寒武纪地质学家沈其韩先生地质生涯 50 周年暨 70 寿辰。回顾沈先生所走过的道路和取得的丰硕成果, 无疑会使我们大家受到鼓舞和鞭策。

沈其韩先生 1922 年生于江苏省海门县, 1942 年考入国立重庆大学地质系。1946 年毕业后在南京中央地质调查所任练习员、技佐。解放后历任南京中国科学院地质研究所技术员, 地质部湖北大冶 429 队和山西垣曲 214 队工程师、副科长、技术负责, 地质部地质(矿产)研究所副主任工程师、铁矿研究队负责人、研究所副主任工程师、铁矿研究队负责人、研究室负责人, 地质矿产部地质研究所高级工程师、研究员、所长等职务, 以及中国地质学会 33—34 届理事、中国地质学会岩石专业委员会和矿物岩石地球化学学会变质岩专业委员会主任委员、IUGS 变质岩分会成员、地质矿产部地质科技成果评审委员会副主任委员、中国地质科学院学位委员会和科学技术委员会委员、地质研究所学术委员会副主任、《科学通报》和《中国科学》编委、《岩石矿物学杂志》主编等诸多兼职。

在半个世纪的地质生涯中, 沈其韩先生始终以开发祖国矿业、发展中国地质科学事业为己任, 立足于中国的地质实践, 在生产、科研第一线努力耕耘, 在矿床勘探、变质岩石学、同位素地质年代学和前寒武纪地质学等领域中取得了一系列高水平的科研成果, 为促进中国地质事业的发展做出了自己应有的贡献。1991 年, 沈先生经国务院批准享受政府特殊津贴待遇, 同年被增选为中国科学院学部委员。沈先生精心治学、勇于探索、无私奉献的精神为我们树立了学习的楷模。

1942 年春, 沈其韩先生高中毕业后, 面对破碎之中华, 内心忧郁愤闷。何以报国? 沈先生从江苏老家冲破层层封锁线奔向了雾都重庆。沿途祖国美丽的风光、富饶的资源、破败的城镇、落后的经济、穷苦的人民……使他感慨万千。日本帝国主义的野蛮侵略和祖国极端落后的面貌, 使他科学救国的志向愈加明朗。数月之后, 几经艰难, 他同时被四川大学森林系和重庆大学地质系录取, 他选择了后者, 从此便拉开了他地质生涯的序幕。

1946 年 6 月, 沈其韩先生于重庆大学地质系毕业, 经考试被南京中央地质调查所录用, 随即加入该所战后重建的行列。在程裕淇先生指导下, 他随李广源在南京附近江宁镇一带进行中生代陆相火山岩 1:1 万填图工作, 还负责把已完成的几幅地质图缩编成 1:5 万地质图, 并编写了说明书; 对工作时发现的明矾石矿进行了槽探揭露并编写评价报告; 利用新引进的微化分析方法发现该区重晶石脉和其他脉石矿物中含有铀元素。这一阶段, 沈先生初步掌握了火山岩地区野外和室内的基本工作方法和有关理论, 为后来进行研究工

作打下了坚实的基础。

解放后,沈其韩先生同全国人民一样,满腔热忱地投入了新中国的建设。他先后奔波于辽宁、湖北、山西、河北、内蒙古、山东、青海、陕西、河南、浙江、甘肃、宁夏、云南、福建等省区,参与和组织了铁、铜、硼、铬等矿种上百个矿区矿点的普查勘探工作,参与和主持了许多重大基础地质课题的研究工作,为新中国的工业、地质矿产和地质科学研究的恢复和发展做出了重要贡献。

50 年代,沈其韩先生在李春昱先生指导下,同邢抚安一起填制的鞍山樱桃园一眼前山一带的地质图件和编写的报告,是东北解放后中国人在该区自己提出的第一份系统资料,为该区矿山的恢复和详勘提供了极为宝贵的依据(原有资料均被日帝所毁而残缺不全)。在湖北大冶 429 队和山西垣曲 214 队工作期间,沈先生作为地质方面负责人之一,组织和参与了大冶铁山、金山店和中条山铜矿峪等矿区的详勘工作。他同边效曾等在铁山矿区发现了尖林山隐伏矿体而使该矿区增加了富矿储量,当时《人民日报》就此做了专门报道。在中条山工作期间因成绩出色,曾两次获得垣曲 214 队的奖励。在参加中苏前寒武纪合作项目期间,沈先生等肯定了五台繁峙一带寒武系与茶房子灰岩之间和茶房子灰岩与滹沱群之间均为不整合关系,首次发现茶房子灰岩和滹沱群中有古孢子存在,肯定了袁家村花岗岩老于 18 亿年,这些都为以后确定滹沱群的时代提供了新的依据。为准备第一次全国地层会议的召开,沈先生组织并参与编制 1:300 万中国前寒武纪地质图和编写《中国的前寒武系》(程裕淇、王曰伦主编)一书。这些成果反映了当时我国前寒武纪地质的研究水平,对后来前寒武纪地质研究工作起到了指导和推动作用。

60 年代,在本溪后仙峪硼矿床专题研究中,沈其韩先生等不赞同镁夕卡岩成矿的论点,提出硼矿床是具一定层位的含硼建造经混合岩化作用富集而成的新观点,这是“层控矿床”观点的初步应用。沈先生参与了程裕淇主编的《变质岩的一些基本问题和工作方法》一书的编写。该书反映了当时我国变质岩研究水平,理论与方法并重,指导性强,是当时区测普查、科研、教学等方面的重要参考书,曾产生很大影响。该成果于 1978 年获得全国科学大会奖。“文革”期间,沈先生受命负责组织青海铁矿研究队,较好地完成了预定任务。在专题研究报告中指出了都兰一带的铁矿远景和找矿方向,为以后铁矿的普查提供了线索,为青藏铁路选线提供了矿产资源方面的确切依据。

70 年代,沈其韩先生先后参与了秦岭黄铁矿型铜矿、夕卡岩型铜矿、冀东前震旦纪铁硅质建造铁矿等专题的研究和浙江铁铜矿床的评价和咨询。他首先肯定了冀东地区不利于大面积风化淋滤型富铁矿的形成,为后来调整找矿战略部署提供了依据,有关研究成果于 1984 年获地矿部科技成果三等奖。沈先生与刘国惠合著的《识别混合花岗岩类岩石的若干标志》一文,是在广泛收集室内外资料基础上的系统总结,为解决区测普查中这一关键性的岩石学难题,初步提出了一个区分不同成因花岗质岩石的综合划分方案,便于区调普查使用。沈先生执笔完成的《山东太古代雁翎关变质火山-沉积岩》专著,是用新的资料和观点对 60 年代初的工作进行的重新总结,增加了岩石化学、原岩恢复、部分矿物的化学特征等资料和决定变质相的某些矿物学及地球化学标志、斜长角闪岩和有关岩石的形成环境及其地质意义、变质基性火山-沉积岩喷发演化特点等方面的内容,并提出本区存在科马提岩,雁翎关组 and 山草峪组相当于绿岩带的一部分等新观点。

“六五”期间,沈其韩先生在担任所长等职务的同时,主持了许多重大课题的研究工

作。他主持了地矿部部控项目“中国北方早前寒武系变质作用与年代学”，并亲自负责“内蒙古中南部早前寒武系变质作用和同位素年代学”课题组研究工作。在对集宁群变质矿物、变质岩石和变质作用较系统研究的基础上，分析了区域变质带在空间分布和时间演化上的若干规律性，进而探讨了该区早前寒武纪的地质演化特点。课题成果专著《内蒙古中南部太古宙变质岩》于 1991 年获地矿部科技成果二等奖。沈先生是中国 1:400 万变质地质图项目的主编之一，同其他主编一起确定图幅总体设计，并负责各参加单位的协调领导、有关疑难问题的分析解决和全国同位素年龄方面的分析研究。项目成果《中国 1:400 万变质地质图（附说明书）》、《中国变质作用及其深化》是我国变质地质学研究史上的里程碑，引起国内外地学界的极大重视。该成果于 1987 年获地矿部科技成果一等奖，1988 年获国家出版总署全国优秀科技图书一等奖，1989 年获国家科委国家自然科学基金二等奖。沈先生还主持了中法合作项目“前寒武纪地质研究”。该课题组在冀东的研究工作中，对太古代地层划分、地质年代格架、花岗质岩石的分期等方面，取得了一些重大进展；在泰山杂岩的研究中，详细划分了花岗质岩石的时代、源岩类型，研究了地球化学特征，并获得了从长期亏损地幔中增生新地壳的有关证据，进而讨论了中国太古代地壳深化规律。这些大大提高了我国前寒武纪地质研究的水平。他参与编写的有关论文已在 Precambrian Research 等杂志和我所所刊上发表。

“七五”期间，沈其韩先生从所领导岗位上卸任，全身心地投入了研究工作，先后担任地矿部攻关项目和国家自然科学基金重点项目的课题负责人。课题成果专著《华北陆台早前寒武纪重大地质事件》首次以板块构造理论对华北陆台进行了构造区划，以丰富的同位素年代学资料确立了太古宙地质年表，在不同时期的岩浆作用、变质作用特点等方面也有许多新的见解。这一成果被认为是近年来我国在这一领域里很重要的进展之一，对今后的研究工作有深远的指导意义。《中国早前寒武纪麻粒岩》一书，是沈先生等对我国主要早前寒武纪麻粒岩区进行重点研究和广泛收集资料的基础上，综合分析而完成的一分关于中国早前寒武纪麻粒岩问题较全面的成果。该书论述了我国前寒武纪麻粒岩的分布、时代、构造格局和地质演变特征，划分出 7 个主要麻粒岩相带，并进一步划分出 4 个变质类型和 6 个亚类型；对麻粒岩的分类命名、地球化学、造岩矿物和紫苏花岗岩等方面都进行了系统研究；在麻粒岩类岩石的流体包裹体和氧同位素等方面进行了初步研究。该项成果是对我国麻粒岩研究的第一次总结，有若干创新，还填补了某些空白。

沈先生虽已年届七旬，仍壮心不已，“八五”期间还承担许多重大课题的研究任务。他参与和负责的“华北地台北缘麻粒岩相带的地质演化及其深成地质作用”、“冀西北一密云一带麻粒岩相带的岩石学研究”等国家自然科学基金重点和面上项目都在进行中，1992 年 4 月又出现任地矿部重大基础项目“华北地台早前寒武纪地质特征及构造演化模式”的首席科学家。沈先生要为我国早前寒武纪地质和变质岩研究取得更多更新的进展而继续奋斗。

沈其韩先生在精心从事研究工作的同时，十分重视人才培养，期望中青年同志后来居上。他指导的十余名硕士、博士研究生在各自岗位上都已崭露头角，有的已被破格晋升为副研究员。他主持的课题组中的一些中年科技人员已成为我国前寒武纪地质研究领域中的中坚力量，有的已被提前晋升为研究员。许多科研院所、大专院校和野外队的中青年同志前来请教，沈先生总是不厌其烦、认真解答。

50 年过去，弹指一挥间。沈其韩先生的足迹遍及祖国各地，在地学诸多领域中取得

了丰硕的成果,可亲可敬。他渊博的知识、严谨的学风、平易近人的态度,给人们留下了深刻的印象。值此沈先生从事地质工作 50 周年暨 70 寿辰之际,我们衷心祝愿他健康长寿,在科学探索中取得更大的成就,为发展祖国地质矿产事业做出新的贡献。

作者简介

郭云麟,男,1932 年生。1956 年毕业于北京地质学院,1962 年获苏联莫斯科地质勘探学院副博士学位。长期从事含煤沉积研究和科技管理工作。现任中国地质科学院地质研究所所长,研究员。通讯地址:北京市百万庄路 26 号地质研究所,邮政编码:100037。

FIFTY YEARS OF PROF. SHEN QIHAN'S GEOLOGICAL CAREER

Guo Yunlin

(*Institute of Geology, CAGS*)

We take the opportunity of the 70th birthday of Prof. Shen Qihan, an eminent of Precambrian geologist expert on petrology, to give an account of his academic activities and important achievements over his professional career of 50 years.

Shen was born in 1922 in Haimen County of Jiangsu Province. He entered the Department of Geology, National Chongqing University in 1942. After graduation in 1946 he was assigned to the Geological Survey of China as a junior geologist. After liberation in 1949 he worked successively in the Nanjing Institute of Geology, Academia Sinica, the No. 429 and 421 Geological Parties of the Ministry of Geology (MG) and the Institute of Geology under the MG, and was promoted progressively from technician, to engineer and then to research fellow. In 1991 he was elected as a member of the Division of Earth Sciences, Academia Sinica.

In his half-century geological career, Prof. Shen has devoted himself to mineral exploration and development of geoscience in China. Through working hard at the frontier of both field investigations and laboratory studies, he has made a series of high-level scientific achievements in mineral prospecting, petrology, isotopic geochronology and Precambrian geology, thus contributing a lot to the development of the geological undertakings of China. In 1991, he was awarded special governmental subsidies by the State Council and elected as a member of Academia Sinica. Shen has hence set a fine example to us in being devoted to studies, frank and outspoken, and strict with himself.

Shen graduated from high school in the spring of 1942, and being faced with ruined China he was awfully vexed. How to serve her? Keeping the question in mind he left his

hometown in Jiangsu Province, and arrived in Chongqing, then the national capital enveloped in fog, after having broken through blockades. On the way to the capital city he was haunted with gloomy thoughts after seeing mixed pictures of magnificent landscape, plentiful resources, devastated cities and towns, undeveloped economy, impoverished people ... Impressed by the brutal invasion of the Japanese imperialists and the extreme backwardness of China, an idea crossed his mind: to save China by science. After months of arduous efforts, he passed, at the same time, the entrance examinations of the Department of Forestry of Sichuan University and the Department of Geology of Chongqing University. He chose the latter, henceforth starting his geological career.

Shen graduated from the University in July 1946 and was employed, through examination, by the Geological Survey of China in Nanjing, instantly taking part in the post-war reconstruction. Under the direction of Prof. Cheng Yuqi, he, along with Mr. Li Guangyuan, mapped the Mesozoic continental volcanics around Jiangningzhen near Nanjing on the scale of 1 : 10 000, and compiled a 1 : 50 000 map with an explanatory note based on some earlier maps; wrote an evaluating report on the alum mineralization discovered during their field work, and found uranium ore in the barite veins and veins of other minerals by a microchemical analysis method introduced just then. In those years he had a preliminary grasp of the indoor and outdoor research methods in volcanic regions and related theories, which laid a basis for his future study.

After liberation in 1949, like many others in the country Shen devoted himself with great enthusiasm to the economic construction of new China. He travelled extensively in Liaoning, Hubei, Shanxi, Hebei, Inner Mongolia, Shandong, Qinghai, Shaanxi, Henan, Zhejiang, Gansu, Ningxia, Yunnan, Fujian, etc. and left behind remarkable records, taking part in and organizing the reconnaissance survey and prospecting of up to a hundred of mineral deposits and occurrences, participating in and taking the leadership of many important projects on basic geology, and thus he has made significant contributions to the reconstruction and development of the relevant industry, geological mining and geological research of China.

In the 1950's, Shen, together with Mr. Xin Fu'an, under the direction of Prof. Li Chunyu, mapped the Yingtaoyuan-Yanqianshan district of Anshan and presented a geological report, the first data of the region documented by Chinese geologists since liberation of Northeast China, providing a sound basis for the restoring and detailed prospecting of ore deposits of the area (previous records were destroyed by Japanese invaders). During his working in the No. 429 Party in Daye of Hubei and the No. 214 Party in Yuanqu of Shanxi, he organized and participated in the detailed prospecting of the ore districts of Tieshan and Jinshandian in Daye, and Tongkuangyu in the Zhongtiao Mts. He, together with Mr. Bian Xiaozeng and others, discovered the buried ore in Jianlinshan that increased the reserves of rich ore in the Tieshan ore district. This story was then specifically reported by the People's Daily. In the Sino-Soviet joint project on "the Precambrian Geology of

China" Shen and his colleagues confirmed the unconformities between the Cambrian and the Chafangzi Limestone and between the latter and the Hutuo Group in the vicinity of Fansi in the Wutai Mts., and they were the first to find spore in the Chafangzi Limestone and the Hutuo Group, and ascertained that the Yuanjiaocun Granite is older than 1800 Ma. This furnished a new evidence for the dating of the Hutuo Group. For the First All-China Stratigraphic Congress he participated in the organization and compilation of the 1: 3 000 000 Precambrian Geological Map of China and the book "Precambrian System of China". These publications reflected the high level of the Precambrian research China reached at that time and played a guiding and motivating role in this aspect.

In the 1960's in the monographic study of the boron deposit in Houxianyu of Benxi, Liaoning, Shen and his colleagues, disagreed with the argument that the deposit was born of magnesium skarn, and advanced a new idea that it was formed by the enrichment, through migmatization, of the boron-bearing formations that occupied a certain horizon. This is the first application of the theory of stratabound ore deposit. Shen contributed a great deal to the book "Some Basic Problems and Working Methods of Metamorphic Rocks" of which Prof. Cheng Yuqi was the editor-in-chief. This book, displaying the contemporary research of metamorphic rocks in China, pays equal attention to dealing with theory and research methods and is very instructive, thus it was then an important reference to regional geological investigation, scientific research and teaching, and was influential. This achievement was awarded the National Science Conference Prize in 1978. During the "Cultural Revolution", Shen was assigned to organize the Qinghai Iron Ore Research Party. In their monographic report they declared prospects and guide for searching ore in the Dulan region, providing the clue for future reconnaissance for iron ore and decisive evidence of mineral resources for the route choice of the Qinghai-Tibet railway.

In the 1970's, Prof. Shen participated in many monographic studies, such as pyritic copper deposits and skarn copper deposits in the Qinling Mts., iron-copper ore deposits in Zhejiang Province, and Pre-Sinian banded iron formations (BIF) in eastern Hebei Province. He is the first to confirm that eastern Hebei is unfavorable for the formation of large-scale, rich, weathering-leaching iron ore deposit, which provided evidence for the amendments of mineral prospecting strategy. This result got a third prize from the MGMR in 1984. His article "Criteria for distinguishing migmatitic granites" co-authored by Liu Guohui, a systematic summary based on extensive collection of field and laboratory data, offered a synthetic, though preliminary, scheme to classify granitic rocks of different origins for a solution to the crucial petrologic problem encountered in regional geological surveying, which is practical. His monograph "Archaean Metamorphosed Volcano - Sedimentary Rocks in the Yanlingguan Area, Shandong Province" is a renewed summary of the work done in the early 1960's from a new point of view and with supplementary data, e.g. petrochemistry, protolith restoration and chemistry of some minerals, and mineralogical and geochemical indicators of metamorphic facies, formation environments

of the plagioclase amphibolite and related rocks and their geological significance, and the eruption and evolution of the metamorphosed basic volcanic-sedimentary rocks. He proposed new ideas that in the region there exists komatiite, and the Yanlingguan Formation and the Shancaoyu Formation are equivalent to a part of greenstone belt.

During the years of the 6th five-year plan (1980-1985), as Director of the Institute, Shen took the leadership of many important research projects. He is the leader of the project "Metamorphism and Geochronology of Precambrian in Northern China" that was sponsored by the MGMR, and is personally responsible for the study of one of its subjects, "Metamorphism and Isotopic Geochronology of the Early Precambrian System in Mid-Southern Inner Mongolia". After a systematic study on the metamorphic minerals, metamorphic rocks and metamorphism of the Jining Group he analysed some features of the regional metamorphic belts in their spacial distribution and temporal evolution, and probed into the Early Precambrian geological evolution of the region. This research, resulting in a monograph "Study on the Archaean Metamorphic Rocks in Mid-Southern Nei Mongol of China", was awarded a Second Class Prize for Scientific and Technological Achievements by the MGMR in 1991. As one of the editors-in-chief of the 1:4 000 000 Metamorphic Geological Map of China, he, together with others, completed the design of the map, finding solution to encountered knotty problems and analysing data about the isotopic ages obtained from the whole country. This project produced the 1:4 000 000 Metamorphic Map of China with an explanatory note and the book "Metamorphism in China and Its Relation with the Crustal Evolution" which is a milestone in the study of metamorphic geology in China, and attracted great attention at home and abroad. Thus it was awarded a First-Class Prize for Scientific and Technological Achievements by the MGMR in 1987, a First Prize as an excellent scientific book by the Press and Publication Administration in 1988, and a Second-Class Prize of Natural Science by the State Science and Technology Commission in 1989. He also presided over a Sino-French joint project "Research on Precambrian Geology" which made a great breakthrough. They found the basic supracrustal rocks of 3500 Ma in the Caozhuang region in eastern Hebei Province, and made detailed description of it with field observation, petrography, Sm-Nd isotopic dating and REE geochemistry. They also collected evidence from the Taishan Complex, proving that new crust may be derived from long-depleted mantle, and, based on this, discussed the Archaean crustal evolution of China. These achievements greatly improved the Archaean research in China. His papers, co-authored by others, were published in many magazines such as Precambrian Research.

In the period of the 7th five-year plan, he left the post of director and threw himself into research work, taking the leadership of scientific research projects sponsored by the MGMR or supported by the China National Natural Science Foundation. The monograph "Important Geological Events of Early Precambrian in North China Platform" was first dealt with the tectonic subdivision of the platform in the light of plate tectonics, established

a geological time scale of the Archaean with abundant radiometric dating data, and gave new explanations for the magmatism and metamorphism of different geological periods. This achievement is regarded as a major progress made in this field in China and is a good guide for future research. The book "Early Precambrian Granulites in China" is a work finished by Shen and his colleagues after their intensive study on the major Early Precambrian granulite regions of China and extensive material collecting. It is a comprehensive revelation on the problems of granulite of China. In the book the distribution, ages, tectonics and geological evolution of the granulites were dealt with, four major granulite facies belts were distinguished and furthermore four types and six subtypes; systematic studies were made on the classification, nomenclature, geochemistry, rock-forming minerals and charnockite of the granulites; pioneering work was carried out on fluid and oxygen isotope of granulitic rocks. This is the first summary of the research on granulites in China, in which there is creative and gap-filling work.

Though at his age of seventy, Prof. Shen is by no means without ambition. In the years of the 8th five-year plan (1990-1995) he takes on the responsibility for many big research projects. While programs "Geological Evolution of the Granulite Facies Belt and Its Plutonic Process on the Northern Margin of the North China Platform" and "Petrological Study on the Granulite Facies Rocks in the Region of Northwest Hebei-Miyun, China:" supported by the China National Natural Science Foundation are under way, he is elected the chief scientist of the important basic research project "Early Precambrian Geological Characteristics and Tectonic Evolution of the North China Platform" sponsored by the MGMR. He is still striving for more and new progress in the study of Early Precambrian geology and metamorphic rocks in China.

While he is devoted to his scientific investigation, he pays great attention to the training of young geologists, hoping that they will surpass the old. More than ten masters and one doctor under his supervision are now distinguishing themselves at their posts, and some of them have been promoted to associate research fellows. Some middle-aged scientists in the research group under his leadership have now become the striking figures in the field of Precambrian geological research in China. Many young people from research institutions, colleges, universities and field parties come to consult him, and he would patiently give answers without reservation.

Over the last fifty years of his geological career Prof. Shen has set his foot in every corner of the country. He is respected for his numerous and glorious achievements in many fields. We are impressed by his erudition and being strict in study. On the occasion of the 50th anniversary of his career and his 70th birthday we wholeheartedly wish him good health. We also expect that he will achieve more in his future work and make new contribution to the geological study and mineral exploration of China.

沈其韩研究员的著作目录

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