Growth Period (1954–1994): Maps Displaying More Information and Printed in More Standard Way

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With the rapid development of national construction and geological work, from 1953 to 1956, the state set up four Sino-Soviet cooperation regional geological survey brigades (Xinjiang 13th geological brigade, Daxing'anling geological brigade, Qinling geological brigade, and Nanling geological brigade). The *General Survey Notes*, compiled by Huang Jiqing and Xie Jiarong in 1954, put forward unified requirements for stratigraphic division, use of geological codes, various pattern symbols, and color marks in field mapping, thus providing scientific basis for unified representation of large-scale geological maps in China. Through Sino-Soviet cooperation and the unremitting efforts of our geological predecessors, a new situation has been opened up for the regional geological survey and geological mapping in China.

During this period, China's geological mapping has developed rapidly, and at the same time it enjoys a lot of international reputation. For example, from 1973 to 1976, the *Geological Map of Asia (1:5 million)*, compiled by Li Tingdong, Li Chunyu, and Wang Hongzhen, and the *Geological Map of the People's Republic of China (1:4 million)*, compiled by Geng Shufang, caused a great sensation when they participated in the 25th International Geological Congress exhibition, which was highly praised by foreign media.

China's geological mapping have developed to a more systematic and perfect stage. Geological map information is more rich and diverse, and the printing is more standardized. The relevant thematic studies are carried out simultaneously, such as agricultural ecological geology, environmental geology and tourism geology. The unified specific requirements of the representation method of geological maps, the shape, size, color, and structure of symbols, as well as the schema and legend, create conditions for the rapid transmission of geological information and automatic mapping.

This monochromatic drawing has been meticulously done, with such fine attention to detail that even the houses behind the trees are accurately depicted. Mt. Shirenfeng is rendered using the simple wrinkled-texture method of traditional Chinese painting. Coupled with the clouds in background, this approach makes the picture both realistic and imaginative. The drawing's composition resembles that of a Tai Chi map, full of conflict and harmony (Fig. 4.1).

The measured layout and accurate rendition has high aesthetic quality. The vigorous lines seem dense enough to block the wind and recall the poetic thought that "The cloud wishes it were a bird" (Figs. 4.2 and 4.3).

Overall, the diagram adopts a triangular format, with a strong sense of perspective. The diagram is vertical, orderly, and lively (Fig. 4.7).

The macroscopic geological terrain is depicted with fine, artistic lines, such that the sketch resembles an elegant landscape painting. Depicting the local landscape in an objective, detailed manner, the sketch adds dramatic effects through a background of towering mountains and streaming clouds (Fig. 4.10).

The drawing is beautiful, with water in the foreground and mountains in the background in a movement from the dynamic to the static. The floating clouds add life to the quiet loftiness of the mountains while making the image more transparent, like a majestic perspective in oil painting. The drawing perfectly combines geology and aesthetics (Fig. 4.17).

The microscopic illustrations were drawn with colored pencils and are bright and succinct (Fig. 4.18).

The ore bodies in the diagram were drawn in orderly alignment and bright, contrasting colors. They are highlighted with geographical signs (Fig. 4.19).

The diagram is drawn in complex but clear lines combined with watercolor blocks and represents an engineering geological chart of a mining area in Guangdong Province (Fig. 4.20).

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Fig. 4.1 Geomorphological sketch of Shirenfeng tungsten mine, Shixing, Guangdong Province (sheet 1) [1]

Fig. 4.2 Geomorphological sketch of Shirenfeng tungsten mine, Shixing, Guangdong (sheet 1) [2]

The creation of the 13th Sino-Soviet Geological Cooperation Brigade of Xinjiang in 1953 opened a new chapter in China's regional geological survey activity. The geological maps produced during this period are mostly bilingual in Chinese and Russian (Figs. 4.21 and 4.22).

This diagram describes the core preservation in solid figure (Fig. 4.23).

Lines and gouache coloring were used in the diagram, making it orderly and elegant. There is a clearly drawn legend (Fig. 4.24).

In contrast to the seriousness and simplicity of other report covers, this cover is decorated with a variety of imagery, such as a phoenix and auspicious clouds. The appealing effect is one of goodwill and suggests the creative enthusiasm of hard-working geologists (Fig. 4.25).

This is China's first tectonic map on the scale of 1:3,000,000. The map had a profound impact at home and abroad and was widely recognized by geoscientists as an epoch-making and canonic achievement in the history of Asian tectonic studies (Fig. 4.31).

Fig. 4.3 Geomorphological sketch of Shirenfeng tungsten mine, Shixing, Guangdong (sheet 2) [3]

The monochromatic map is rich in content, with clear geological signs and depicting diverse terrain (Fig. 4.32).

The multi-color quaternary geological map is primarily rendered in yellow and green, with a double-line frame and a latitudinal and longitudinal grid. The colors are harmonious, while the content of the map is rich (Fig. 4.33).

This tectonic map with internal sheet division depicts complex content with bright and contrasting colors. It was published as a print from a fair drawing (Fig. 4.35).

The diagram appears three-dimensional, with distinct, vivid layers of color. It includes a complete and detailed legend and other features (Fig. 4.39).

The map was created with clear lines in elegant colors rendered using a traditional Chinese brush painting technique. The color transitions are natural and smooth (Fig. 4.40).

The columnar description is concise and easy to grasp (Fig. 4.41).

Contrasting colors were used to create an effect of color fluidity (Fig. 4.45).

The texture is dense, orderly, and clean, with a subtle tint of color in certain areas, making the overall drawing precise and refreshing (Fig. 4.49).

The sketch depicts richly complex structures, with distinct blocks and neatly labeled geological elements (Fig. 4.50).

The diagram employs the perspective method to describe ore bodies (Fig. 4.51).

The balanced and harmonious, brightly colored map is divided into four parts (Fig. 4.52).

The map was drawn in optimal density with elegant colors (Fig. 4.54).

Fig. 4.4 Diagram of a seam columnar section of Yaojie coal mine [4]

Fig. 4.5 Schematic diagram of the engineering geological map of areas south of the dam axis (river bed section) [5]

Fig. 4.6 Geological map of areas peripheral to Gaositai, Chengde, Rehe [6]

Fig. 4.7 Equal area chart of the middle Jurassic stratum of Yaojie coal mine in the Minhe Basin [7]

Fig. 4.8 Agricultural utilization map of irrigated land in the Yellow River Basin [8]

Fig. 4.9 Distribution of observation stations at various levels in the Huaihe River Basin in 1954 [9]

Fig. 4.12 Geological profile sketch of Mt. Guaran-Mt. Yinshan [12]

Fig. 4.13 Sketch attached to final geological report on Subashi in central Mt. Huoyan, the Turpan Basin [13]

Fig. 4.14 Statistical diagrams of joints and fissures of the Tuanbaoshan lead-zinc mining area in Hanyuan County, Sichuan Province [14]

Fig. 4.15 Sectional diagram of a copper mine in the adjoining area of Yimen, Shuangbai, and Eshan counties, Yunnan Province [15]

Fig. 4.16 Topographic and geological profile of Tuoze iron ore mine in Butuo County [16]

Fig. 4.17 Perspective view of the terrain in the vicinity of Maoming oil shale field [17]

Fig. 4.18 Microscopic illustration attached to calculation table of a talc reserve in Fanjiapuzi [18]

Fig. 4.19 Perspective diagram of ore bodies near West Lake [19]

Fig. 4.20 Engineering geological map of pyrite mine in Mt. Liuhuang, Yingde, Guangdong Province [20]

Fig. 4.21 Series of geological maps of the Kashi-Akesu region of Southern Mt. Tianshan, Xinjiang (1) [21]. (Source: Part of the series to geological map of the Kashi-Akesu region of Southern Mt. Tianshan, Xinjiang.)

Fig. 4.22 Series of geological maps of the Kashi-Akesu region of Southern Mt. Tianshan, Xinjiang (2) [22]. (Source: Part of the series to geological map of the Kashi-Akesu region of Southern Mt. Tianshan, Xinjiang.)

Fig. 4.23 Schematic drilling diagram [23]

Fig. 4.24 Regional hydrological and geological map of the mining areas in the Suyukou, Yugou, and Nansi vicinities of Mt. Helan mountain [24]

Fig. 4.25 Mineral geology report (cover) [25]

Fig. 4.26 Cover of the report on mineral exploration in Liancheng County [26]

Fig. 4.27 Sketches of various polymetallic ore specimens from the Wujiang mining area of Leishan [27]

Fig. 4.28 Sketch of outcrop G1001 of the Dunan mining area of Leishan [28]

Fig. 4.29 Sketch of shallow well II/E1 of the lead-zinc mining area of Bangou [29]

Fig. 4.30 Sketches of the interface of J_{3a} and J_{2c} , among others [30]

Fig. 4.31 Geotectonic map of the People's Republic of China [31]

Fig. 4.32 Geomorphological map of the western Inner Mongolia Plateau (I—I', II—II' geomorphology sections) [32]

Fig. 4.33 Quaternary geological map of the Qaidam Basin [33]

Fig. 4.34 Illustration attached to report on a tectonic fracture system and engineering geological issues of the dam area of the Xinfengjiang River [34]

Fig. 4.35 Tectonic map of the Xi'an area [35]

Fig. 4.37 Sketch of exploration ditch T_{Q1} at the crystal mining area of Miaogou [37]

Fig. 4.38 Sketch of a geode in a mine block of the Gongli crystal mining area, Luodian County, Guizhou Province [38]

Fig. 4.39 Geological structure projection diagram of the Yinda experimental section of Jiuquan [39]

Fig. 4.41 Diagram of coal seam thickness variation of Pit 36 in Lanjiawan [41]

Fig. 4.43 Joint contour map for the report of the 1963 general survey on the Qitianling area of Hunan Province [43]

Fig. 4.44 Diagram of the composition and distribution of the diamond deposit in eastern Guizhou Province and western Hunan Province [44]

Fig. 4.45 Topographic and geological map of Tongyu chrome mine in Zuoquan County, Shanxi Province [45]

Fig. 4.47 Hypothetic diagram of the development stage of volcanic subsidence of the Lujiang-Zongyang volcanic basin [47]

庐枞火山沉降发育阶段设想图(插图8)

A—D. 龙门院旋回发育时期(第一喷发期形成沉积铁矿); B—D. 重复早、中碎屑旋回发育时期(第二、三喷发期图中未表示); E. 早期复活隆起(安山玢岩侵入及主要铁矿期); F. 晚碎屑旋回发育时期(第四喷发期); G—H. 双石旋回发育时期(第五、六喷发期); I. 晚期复活隆起; J. 浮山旋回发育时期(第七喷发期)

(据南京地矿所资料)

Fig. 4.48 Sectional axonometric drawing of engineering geology of the Fuling Road-Labor Road Overpass Project [48]

Fig. 4.49 Illustrations and sketches of minerals attached to report on geological turquoise survey at Mt. Duancen, Wulan County, Qinghai Province [49]

Fig. 4.51 Geological joint section of No. 1 deposit [51]

Fig. 4.52 Geochemical map of vanadium in the geochemical exploration site of an urban area of Shantou City, Guangdong Province [52]

浙江省椒江市规划区工程地质剖面图

比例尺：水平1:10000 垂直1:500

Fig. 4.53 Engineering geological profile of district planning of Jiaojiang City, Zhejiang Province [53]

Fig. 4.54 Hydrogeological map of the Qingchengzi region in central Liaoning Province [54]

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