Let's all toast Hyogo!

-The Center of Production of Sake and Sake-brewing Rice-2

Miracle Water

Conservation Activities Continuing in the Urban Underground

Helping the Region to Prepare for Disasters

Platform and track elevation work is underway at Fukae Station of the Hanshin Electrical Railway (Higashinada Ward, Kobe). The work for platform and track for trains bound for Umeda, Osaka, commenced in April.

Kobe City and the Hanshin Electrical Railway are carrying out the construction work over a distance of four kilometers from the east and west between Sumiyoshi Station and the boundary with Ashiya City using a very special method of construction. "It is in an effort to minimize any adverse effect on the underground water from the Rokko Mountains," stated Motonobu Kuwajima (aged 49), Office Manager of the railway company. "And that is because the Nada Gogo district is at the south side of the construction site and brewing companies in the area need to use the water."

Water quality surveys are carried out by brewing companies via simultaneously sampling water from the wells every February and July (a Miyamizu well and Tadashi Iki, the Toji sake master at Nishinomiya)

To the eastern side of Uozaki Station, they need to install about 800 foundation piles that are connected to beams under the ground. This method, however, could block the flow of water about two-to-five-meters deep underground, and hence they must avoid using beams in some areas in thereby ensuring that the water can still flow through. Furthermore, and in order to avoid any possible water contamination, they do not directly pour any mortar and instead utilize a method that features metal tubes.

There are 61 permanent wells used to monitor the system and quality of water in the neighborhood. "We sometime identify unusual values, although no construction work has taken place. We then attempt to identify the cause, and have discovered construction work on a condominium is underway to the north of the area," stated Kuwajima, the Office Manager.

This underground water conservation system was developed in Nishinomiya in 1924, which was when the Koshien Stadium was first opened. Water quality near the coast in Nishinomiya had degraded due to developments in the harbor area. Very good-quality water is essential in producing Nada-no-Sake but it was at risk at that time, and hence the Miyamizu Protection Survey Committee was established, which was headed by the governor of Hyogo Prefecture.

Currently, with respect to individual building construction work, any road or railroad work project that could adversely affect the underground water necessitates countermeasures being discussed and taken by the "Miyamizu Conservation Survey Committee" in Nishinomiya and "Water Resources Committee" in Kobe. When a number of construction projects are being planned, then 10 or more explanatory meetings can be held every month.

"The quality of water in not-so-deep underground has thereby been maintained at the same level as in the past in the well-urbanized Kobe and Hanshin regions, which you could call rather miraculous," Takeshi Sumikawa (aged 61), an advisor of Miyamizu Conservation Survey Committee, emphasized.

The water contains very little components such as iron or salt, both of which are considered to be undesirable when producing sake. However, it does contain various minerals, such as phosphorous and potassium, that are necessary in the activities of Koji mold that decomposes rice starch, and the yeast that produces alcohol.

Construction work on elevating the platform at Fukae Station of Hanshin Railways is underway, using a method that ensures the groundwater is protected (Higashinada Ward, Kobe)

Miyamizu in Nishinomiya in particular is so well known for its high-quality water that brewers have dug their own wells.

The Miyamizu in this area is comprised of riverbed water flowing from three major directions: Nishinomiya Shrine, National Route 171, and the south side of Nishinomiya City Hall. The water flows at the basically same depth as sea level, and hence if any of the riverbed water flow were to be blocked it would be adversely affected by being mixed with seawater. Brewers have therefore been moving northward in the search for Miyamizu. The wells of those brewers are currently concentrated in an approximate 500-meter square to the south-east side of Nishinomiya Shrine.

"Salt water reaches the south side of this place. The water to the north side contains a lot of iron. We will have to continue protecting the area while researching even better methods," Tadashi Iki (aged 62) stated in a serious manner. He is the Toji sake master at Tatsuma-Honke Brewing Co., Ltd., which is a brand of Hakushika.

Many people have consistently struggled to conserve the water provided by the Rokko mountain range but it was once made available to and indeed saved lives of the general population after the Great Hanshin Awaji Earthquake. Protecting the water system, the essential component in sake brewing, is therefore also essential in ensuring the area is well-prepared for a disaster.

(Kazuyoshi Tsujimoto)

※Head of The Kobe Shimbun Business News Desk

兵庫に乾杯

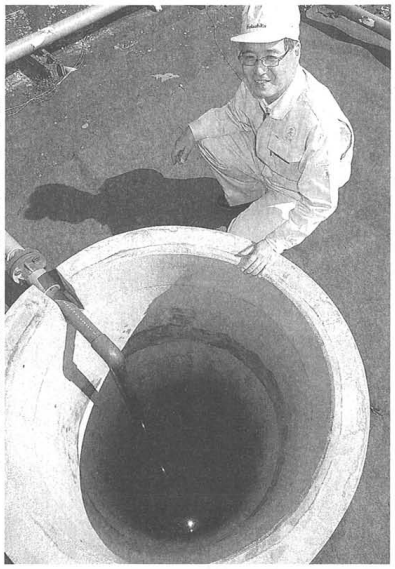
日本酒と酒米の聖地

2

奇跡の水

都市地下で続く保全活動

災害に強いまち支え



毎年2、7月に各社による一斉採水で調査が行われる 宮水井戸と壱岐正志杜氏＝西宮市

駅と線路の高架化が進む阪神電鉄深江駅（神戸市東灘区）。4月から梅田方面の上り線で工事が始まった。

神戸市と阪神電鉄が住吉駅から芦屋市境まで東西4㌔の区間で進める工事は、特殊な工法が導入されている。同電鉄の桑島元信東灘工事事務所長（49）は「南側で灘五郷の各社が酒造りに使用する六甲山系の地下水にできるだけ影響を与えないためです」とその理由を話す。

魚崎駅から東側では基礎のくいを約800本打ち、地中梁㌔で結ぶ。だが、地下2～5㍍ほどを流れる水を遮る恐れがあるため、梁のない区間を設けて水の道を確保している。また、水の汚染につながるコンクリートの直接注入はせず、金属の筒を使う工法を採用した。

周辺には水脈や水質を観測する61の常設井戸もある。「工事をしていないのに変な数値がたまに出る。調べてみると北側でマンション工事をしていたり…」と桑島所長。

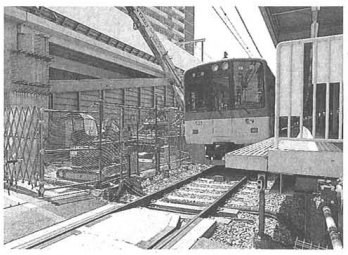
こうした地下水保全の仕組みは1924（大正13）年、西宮で生まれた。甲子園球場が誕生した年だ。西宮市の港湾地域の開発で海岸近くの水質が悪化。灘の酒造りに欠かせない水が危機にひんしたため、兵庫県知事を会長とする宮水保護調査会が設立された。

現在は、地下水への影響が懸念されるビルや鉄道、道路などの工事ごとに、西宮市内では「宮水保存調査会」、神戸市内では「水資源委員会」による協議と対策が実施される。工事が多い時には説明会が月に10件も開かれることもあるという。

「都市化が進んだ神戸・阪神間で、浅い深度の地下水が昔と変わらない水質で保全されているのは奇跡というほかない」。済川健・宮水保存調査会顧問（61）は強調する。

酒造りにマイナスとなる鉄分と塩分は非常に少ない。一方、米のデンプンを分解する麹菌やアルコールをつくり、酒造りの生命線である酵母菌の活動に必要なリンやカリウムなどさまざまなミネラル成分を含んでいる。

中でも、西宮の宮水は各社が専用井戸を設ける名水として知られる。



地下水を守る工法で進められる阪神電鉄深江駅の高架工事＝神戸市東灘区

西宮神社と国道171号、西宮市役所南側の3方向からの伏流水がブレンドされてできている。しかし、海水面とほとんど変わらない深度なので、伏流水の流れが遮られると海水浸透の影響を受けやすく、採取地は北上を続けてきた。現在、各社の井戸は西宮神社南東約500㍍四方に集中している。

「ここより南は塩水がきている。北側は鉄分が多い。これからもいい方法を探りながらここを守っていかないといけない」。白鹿ブランドの辰馬本家酒造の壱岐正志杜氏（62）は厳しい表情で語る。

多くの人々の地道な取り組みで保全されてきた六甲山からの恵みの水は、阪神・淡路大震災の際には一般開放され、市民の命の水となった。酒造りの生命線であるこの水を守ることが、災害に強いまちづくりにも欠かせない。

（辻本一好）

神戸新聞 5月1日