

Examination
Questions & Answers
for
Locomotive Drivers
and
Firemen.

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PREFACE

The idea of the authors publishing this little book in a slightly argumentive style was arrived at after much experience in the Lecture Room and official examinations of Senior firemen.

Questions with reference to Broken Valve Gears, Springs etc., etc. have been purposely omitted, but students wishing to make further study can obtain such books if they so desire.

This little book is intended to test a man's general knowledge, other than how to deal with failures that very seldom occur.

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Fengtai
1st October, 1925

序 言

此小書之刊發文意理論務求淺顯係著者根據平日講室上及口試生火之習慣

對於損壞閥動機關彈簧等等各問題均未列入如學者欲求深究則仍可續編

此篇立意為試驗人之普通知識其餘不常經見各種失效或意外未詳焉

謝 蘭

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豐 台

民國十四年十月一日

EXAMINATION

Questions and Answers for Locomotive Drivers and Firemen.

- (Q) 1. What is the first thing that Drivers and Firemen should do, when starting duty in the Engine Shed.
- (A) 2. *To examine the Notice Board for special notices that may have been posted while they were off duty. To take special note of all speed restrictions and notices referring to, "No water" at Watering stations. Then examine the Engine Repair book to discover the running condition of their engine when it returned from its last trip.*
- (Q) 3. For what reason?
- (A) 4. *So that they may be prepared to reduce speed at places enroute, take water where necessary, and be prepared to meet any trouble that may have occurred in the working of their engine on its previous trip.*
- (Q) 5. What should Driver and Firemen examine first on the engine?

考 試

司機司爐之問答

問 1 司機司爐到車房開工時，
首先作什麼事。

答 2 先看通告牌，查看在上次
下班以後，有無新貼緊要
通告。


設通告中標示何處減少
行車速度，水塔無水，當特
別注意極力奉行。

以後再看修理機車賬簿，
查看最後機車行駛回車
房時之情形。

問 3 什麼原故呢。

答 4 如此於必要之時可以預
備減少行車速度。兼知上
水地點，以及機車上如有
不善之處，亦可以先事預
防。

問 5 司機司爐上機車時首先
查驗何處。



- (A) 6. *The water gauge cocks should be tested.*
- (Q) 7. *What next?*
- (A) 8. *The Driver should carefully examine all parts of the engine, carrying a hand hammer and suitable spanner with him, giving special attention to Tubes, Cotter pins, Set screws, Trimmings, Head and Tail lamps and Smoke box door to see that every thing is in proper order before starting. The Firemen should see that tools, oil bottles, oil feeders etc, are sufficient and to report to the Driver if any thing is missing.*
- (Q) 9. *Who is responsible for seeing that all parts of the engine are properly lubricated?*
- (A) 10. *The Driver.*
- (Q) 11. *Who is responsible that the engine has sufficient coal and water for the journey?*
- (A) 12. *The Driver.*
- (Q) 13. *Is it of very great importance to the Driver that his engine is properly cleaned by the engine cleaners?*

(二)

- 答 6 先試水表 (即玻璃管子)
- 問 7 其次 (驗何處)
- 答 8 司機當攜帶手錘羅絲把, 小心查驗機車所有各件. 其鍋爐管子, 大箭, 頂羅絲, 支迷, 頭燈, 尾燈, 並看烟筒櫃子門是司關嚴. 如各處的均完好方可開車. 司爐當點驗各種傢俱, 大小油壺等是否齊全. 如有丢失, 即報告司機.
- 問 9 是誰的責任查看機車各件澆好了油沒有.
- 答 10 司機.
- 問 11 是誰的責任查看機車帶的煤水够用不够用.
- 答 12 司機.
- 問 13 司機對於擦車的, 將他的機車擦的潔淨. 認為是很要緊的事麼.

- (A) 14. *Yes.*
- (Q) 15. *Why?*
- (A) 16. *Because a Driver cannot examine his engine properly, if it is very dirty. Also hot bearings sometimes occur owing to dirty condition of engines and as the Driver is responsible for examination, hot bearings etc, it is best for him to do all he can to have his engine properly cleaned if possible.*
- (Q) 17. *What time should Drivers couple on their trains at terminal stations?*
- (A) 18. *Ten minutes before the booked starting time.*
- (Q) 19. *Who is responsible for Westinghouse couplings between engine and tender being properly connected and the cocks open on the tender and the first vehicle of the train?*
- (A) 20. *The Driver.*
- (Q) 21. *If two engines are coupled on to a train, which Driver is responsible for the Westinghouse?*

(三)

答 14 是要緊的事。

問 15 因為什麼呢。

答 16 機車裏是極髒,司機就不能將他的車查驗的好。還有一節,如有髒物機車軸架等極易發熱,亦與司機驗車的責任有關,設能作到,盡力將車擦潔淨為最好。

問 17 在列車起點之站,司機當在何時去掛車。

答 18 在列車開行點之先十分鐘掛車。

問 19 誰的責任管理機車與水櫃間之風閘管子接好,並開風塞門(卡克)於水櫃及相掛的車輛。

答 20 司機。

問 21 設兩個機車掛一列車,那一個司機擔負接掛風閘責任。

- (A) 22. *Driver of leading engine must see that his engine is properly connected to the rear engine. The Driver of the rear engine must see that his Westinghouse connections to the first car on the train are correct and cocks open.*
- (Q) 23. What is the difference between Single and Double line?
- (A) 24. *Single line working is governed by train Staff or Tablet. Double line working is controlled by signals only.*
- (Q) 25. Being now already to start, what must Station Master give the Driver, when working on a single line before starting his train?
- (A) 26. *Train Staff or Tablet.*
- (Q) 27. If two engines are on the train what is the proper working for the Staff or Tablet?
- (A) 28. *The Staff or Tablet must be shown to the Driver on the leading engine and handed to the Driver on the rear engine.*

(四)

答 22 前機車之司機管與第二機車之接掛

第二機車之司機管與相連的車輛之接掛，并開好風塞門。(卡克)

問 23 單綫鐵路與雙綫鐵路有何分別

答 24 單綫鐵路行車用路簽或路牌管理之，雙綫鐵路行車只用號誌調度之。

問 25 在單綫鐵路上行車之前，站長必須給與何物方能開行。

答 26 行車路簽或路牌

問 27 設兩個機車同行一列車，路簽或路牌應如何使用為正當。

答 28 路簽或路牌必須讓前機車之司機驗看，然後給與第二機車之司機收存。

- (Q) 29. If Staff apparatus has failed and a Staff or Tablet are not available, what is the proper working?
- (A) 30. *A B C D Line clear forms are used.*
- (Q) 30a. Describe the use of A B C D forms?
- (A) 31a. *(A) form is sent from Station Master to Station Master asking for trains to be held*
- (B) form states all trains are being held.*
- (C) form asks if line is clear for train to proceed to the next station.*
- (D) form states line is clear for train to proceed.*
- (Q) 31. How many forms does the Driver sign?
- (A) 32. *Two.*
- (Q) 33. Which two?
- (A) 34. *B & D forms*

(五)

問 29 設路簽機器損壞,路簽或路牌已不能取出時,應如何辦法.

答 30 應用 A,B,C,D 四種格式憑單.(電報路簽)

問 30a 解釋 A,B,C,D 四種格式憑單用法?

答 30b A 式憑單是由此站站長請彼站站長.(將列車扣留在此站)

B 式憑單,彼站答復.(所有列車均已扣留)

C 式憑單,請問若綫內可通行.(此站將放行列車至彼站)

D 式憑單,彼站答復綫上可通行.(請放行列車)

問 31 司機應當於幾種憑單上簽名.

答 32 兩種.

問 33 那兩種.

答 34 B 與 D 兩種憑單.

- (Q) 35. Why these two?
- (A) 36. *Because B form states all trains are being held, and D form states that the line is clear.*
- (Q) 37. Does any one else sign these forms?
- (A) 38. *Yes, the Station Master and Guard of train.*
- (Q) 39. Does the Driver sign before the Station Master and Guard, or afterwards?
- (A) 40. *Afterwards. The Station Master and Guard must sign first.*
- (Q) 41. What does Driver do with these forms and when?
- (A) 42. *Hands them to Loco Office at the end of journey, not later.*
- (Q) 43. What would be the proper thing for the Station Master to do, if from any reasons the Station Master was unable to give the Staff or Tablet, or A B C D forms?

(六)

- 問 35 因何此兩種。
- 答 36 因 B 式憑單上說所有列車，均已扣留彼站。
D 式憑單上說棧內可通行。
- 問 37 還有誰在這種憑單上簽字。
- 答 38 有，站長及本列車之車守。
- 問 39 是司機先簽名，還是讓站長車守先簽名，司機後簽名。
- 答 40 司機後簽名，站長車守一定先簽名。
- 問 41 司機於此種憑單如何交代，並在何時。
- 答 42 司機行車完畢，立即將此種憑單交到機務段長公事房，不可延緩。
- 問 43 設有緣故站長既不能發路簽路牌，又無 ABCD 四種憑單，站長應如何處理方為正當。

- (A) 44. *Supply a Pilotman after explaining the reasons for not being able to give a Staff or Tablet, or A B C D forms.*
- (Q) 45. How would you know a Pilotman from other men about?
- (A) 46. *He would have to wear a Pilotman's Badge on his left arm, or a red flag tied around his left arm.*
- (Q) 47. What other information should a Driver receive before starting with a train from terminal station?
- (A) 48. *The load of the train in axles, or otherwise.*
- (Q) 49. What else?
- (A) 50. *If there are any special places to stop that are not marked in the time table, Guard should inform the Driver.*
- (Q) 51. What other precautions must he take before starting his train?

(七)

- 答 44 站長當將不能用路簽路牌並四種憑單之緣故宣佈後，可派一導行人。(帶水的)
- 問 45 從衆人中，如何能分別彼爲導行人。
- 答 46 導行人應於左臂上纏有導行帶。(電帶)或左臂上纏紅旗。
- 問 47 在列車起點之站，列車開行前當接開何種報告。
- 答 48 列車之載重，按軸數計，或用別種計數。
- 問 49 還有別的麼。
- 答 50 在行車時刻表歸定之外，設有特別停車之車站，車守須通知司機。
- 問 51 司機在他的列車起行前，尚有別的必得預防的麼。

- (A) 52. *To see that the starting signal has been lowered, and receive a green flag, or light from the Guard.*
- (Q) 53. When leaving the station what should the fireman be doing?
- (A) 54. *Looking back at the train, to see that all the cars are following with the B.V. attached.*
- (Q) 55. What speed is allowed when passing over facing points?
- (A) 56. *10 miles per hour.*
- (Q) 57. Give some reasons for this slow running?
- (A) 58. *Because it is dangerous to go at an excessive speed over facing points, and when passing station where staff has to be exchanged, it is dangerous for the men who have to exchange the Staffs, if train is going too fast, Sometimes the Staff is dropped and train has to stop thus causing delay and often damage to the staff itself.*
- (Q) 59. How should a Driver deal with a white signal light appearing in the place of a red or green light?

(八)

- 答 52 須看出發號誌已否降落，並看車守已否給綠旗或綠燈。
- 問 53 當列車離車站時，司爐應作何事。
- 答 54 後望列車，看所有車輛並附掛之守車是否隨行。
- 問 55 於經過逆行道尖，准行如何速度。
- 答 56 一點鐘十英里。
- 問 57 說幾箇緩行緣故。
- 答 58 於經過逆行道尖速度過高，則發生危險。當過站時交換路簽，於接換路簽之人亦甚危險。設車行特速時，常接不住路簽，而因此停車以致誤點，並路簽亦常因此損壞。
- 問 59 設見號誌上不是紅的或綠的燈光，顯白色燈光，司機當如何處置。

- (A) 60. *The same as a Red light and stop until he has ascertained the reason.*
- (Q) 61. How should a Driver deal with a signal light which shows about half red and green lights?
- (A) 62. *The same as a Red light and stop until he receives further instructions from signal men.*
- (Q) 63. If there is no signal light at a place where such lights should be shown, what must the Driver do?
- (A) 64. *Stop his train, and make sure that the Semaphore arm is correct for him to pass before proceeding.*
- (Q) 65. If when starting with a heavy train, the engine wheels start slipping, what is the cause?
- (A) 66. *A wet or greasy rail.*
- (Q) 67. What does the Driver do?
- (A) 68. *Open the sand valve, and allow sand to run on to the rails beneath his wheels.*

(九)

答 60 當如見紅燈停車，直到已明其緣故。

問 61 若見號誌上是半紅半綠的燈光，司機當如何處置。

答 62 當如見紅燈停車，直到管號誌人給與另外之通告。

問 63 設見應有燈光之處而無燈光，司機必須如何處置。

答 64 停車，先行查實臂形號誌所指之方向，與彼所行者為正確，然後開行。

問 65 設所行為一列重車，當起行之初，機車車輪滑轉是何緣故。

答 66 鐵軌或濕或有油膩。

問 67 司機如何處置。

答 68 開沙箱子閥。(瓦路)放沙子到軌道上，車輪底下。

(Q) 69. Then if it important that sand boxes should be well supplied with sand, and that sand valves be kept in good working order?

(A) 70. *Yes.*

(Q) 71. When slipping takes place, does the Driver shut the regulator before opening his sand valves?

(A) 72. *Yes, because the sudden grip of slipping wheels when sand valves are open, would set up very dangerous strains.*

(Q) 73. Are there sand pipes on both sides of the engine?

(A) 74. *Yes.*

(Q) 75. What is the reason for having one each side?

(A) 76. *Because if sand was supplied on one side only, the strains set up would be very unequal and may possibly cause considerable damage.*

(十)

問 69 如此則沙箱子總得裝滿沙子,並沙箱閥(瓦路)必須靈活好用,亦是要緊的事了。

答 70 是的。

問 71 當滑轉的時候,司機是先關閉汽門,後開沙箱子閥罷。

答 72 是的,要是滑轉的時候就開沙箱子閥,(瓦路)車輪忽然把持住了,則於機件伸縮力上非常危險。

問 73 是機車兩旁均有沙管麼。

答 74 有。

問 75 因為什麼兩旁各有一個呢。

答 76 因為要是只有一邊放沙子,則機件所受把持住之力,就極不平均,或因此能損壞機件。

- (Q) 77. Why should Driver open his regulator very carefully when starting his train after stopping?
- (A) 78. *To avoid possible damage to coupling and inconvenience to passengers.*
- (Q) 79. What is the position of the Reversing lever when starting a train?
- (A) 80. *In full foregear, if going engine first, and in full backgear, if going tender first.*
- (Q) 81. Must he pull the lever up afterwards?
- (A) 82. *Yes,*
- (Q) 83. Why is it necessary?
- (A) 84. *For speed and economy.*
- (Q) 85. Explain briefly how the linking up of a locomotive increases the speed and is more economical?

(十一)

- 問 77 在他列車停止後,再要開行,何以司機開汽門時要極小心.
- 答 78 可以避免壞鈎,及驚擾客旅各事.
- 問 79 在一列車起行時,回動槓桿(手把)應放在何處.
- 答 80 如機車在前,應放在儘前頭.如煤水在前,機車倒拉應放在儘後頭.
- 問 81 後此是必須將回動槓桿(手把)提高麼.
- 答 82 是
- 問 83 因為什麼須要(提高)呢.
- 答 84 因為又出快,又經濟.(減省)
- 問 85 如何機車之滑環(月牙板)提高,即能增進速率,並較為經濟.簡捷解釋之.

- (A) 86. *It brings the Die block nearer the centre of the link, thus shortens the stroke of the slide valve, quickens the Beat, uses less steam, and lessens the draught on the fire which saves coal.*
- (Q) 87. What causes the draught on the fire?
- (A) 88. *The Exhaust steam leaving the blast pipe and escaping up the Chimney with great force.*
- (Q) 89. If the blast pipe nozzle is too large, what happens?
- (A) 90. *It will be difficult to maintain steam with heavy load, owing to insufficient draught.*
- (Q) 91. And if the blast pipe nozzle is too small, what happens?
- (A) 92. *It tears at the fire causing extravagant use of coal, making the work much harder for the firemen and greatly increases the back pressure in the cylinders of the engine which prevents the engine running freely.*

(十二)

答 86 滑環(月牙板)之提高,即使滑塊(月牙板心子)近於環滑(月牙板)之中間,滑閥(錯汽門)往返之路即減短,搗的就快少用汽。

問 87 什麼緣故噉火。

答 88 排洩汽(乏汽)離開排洩汽(乏汽)管,由煙筒噴出,其力尙大,

問 89 假如排洩汽(乏汽)管子口特大,怎麼樣呢,

答 90 因噉火之力不足,若所行為重車,就很難趕足了汽,

問 91 假如排洩汽(乏汽)管子口特小,怎麼樣呢,

答 92 噉火特猛,因而燒煤特多,生火特勞倦,汽缸內返壓力增加,並阻止機車自在行動,

(Q) 93. Is it permissible for the Driver to put a ring in the blast pipe, or anything across the nozzle?

(A) 94. *No, if engine will not steam, it should be reported for examination.*

(Q) 95. How does steam get out of the Boiler and up the chimney?

(A) 96. *When the Driver opens the Regulator in Cab of engine, the regulator valve placed inside the boiler near top of Dome opens, and allows steam from the boiler to pass through the internal steam pipe and the external steam pipe in the Smoke box, to the steam chest, keeping the steam chest full of steam from the boiler. The steam then passes through the steam ports into the cylinder, and presses against the Piston causing engine to move. When piston reaches end of stroke the slide valve has moved, so as to allow the exhaust port in slide valve to open, allowing the used steam to escape through the exhaust port and from there up through the blast pipe to Chimney. The steam leaves the cylinder from the same port that it entered.*

(十三)

問 93 是准許司機在排洩汽(乏汽)管子上,加圈或於口上橫置他物否,

答 94 不准,假如機車不好燒汽,應當報告查驗,

問 95 鍋爐內之汽如何從煙筒出去

答 96 當司機在機車上開汽閥(汽門)時,鍋爐內近於鐘形汽室(汽包)頂之汽閥(汽門)即開開,如此鍋爐內之汽,經由鍋爐裏面正汽管,及煙筒瓶內正汽管,放入汽箱中,汽箱存滿正汽,汽再由汽孔到汽缸,因汽之壓力施於鞴(汽餅),此為機車行動之主因,當鞴(汽餅)走到一頭,滑閥(錯汽門)上之排洩汽(乏汽)孔即開開,已用過排洩汽(乏汽),由此入排洩汽(乏汽)孔,經排洩汽(乏汽)管,而從煙筒放出,排洩汽(乏汽)之出汽缸,仍由進汽原道而出,

(Q) 97. Drivers can be seen examining the smoke box doors of their engine before starting with their train. Why do they do so?

(A) 98. *To see that the door is tightly closed, because if a smoke box door leaks air, the ashes within the box will burn bright and burn the smoke box door.*

(Q) 99. Is it important that the door should be properly shut?

(A) 100. *Yes, because once a door is burned it is sometimes very difficult to get the door properly set again.*

A hot smoke box door raises the coal consumption of the engine very considerably. Makes it much more difficult for the fireman to raise steam, or the driver to keep correct running time.

(Q) 101. What is generally the cause of smoke box doors becoming burned?

(A) 102. *Driver has neglected to see the door was fastened properly.*

(十四)

問 97 在列車開行前常見司機查驗煙筒櫃子,因何他們這樣做.

答 98 係查驗煙筒櫃門是否關嚴,若煙筒櫃子漏氣,則櫃子裏煙子灰,即燒着了,並能將煙筒櫃子門燒壞.

問 99 如此關嚴煙筒櫃子門,亦是很要緊的事麼.

答 100 是的,因為要是有一次將煙筒櫃子門燒壞,再要把煙筒櫃子關嚴是很難做到,一個燒了煙筒櫃子門的機車就要多費很多的煤,司爐仍難使機車長汽,司機行車亦難行正點.

問 101 燒了煙筒櫃子門大概是什麼緣故.

答 102 司機的疏忽沒有查看煙筒櫃子門已否關嚴.

(Q) 103. How much steam should the Steam heater guage register during the winter months, when attached to passenger train?

(A) 104. *It should never be less than 60 lbs. pressure.*

(Q) 105. How many injectors are generally fitted to a locomotive?

(A) 106. *Two, one on the Driver side of engine and one on the fireman's side.*

(Q) 107. If the injectors on the Drivers side of engine failed, and the rubber feed pipe from the tender on the fireman's side of engine was broken, what should the Driver do?

(A) 108. *Take off the good rubber feed pipe from the Driver's side of engine, and put it on the Fireman's side of engine, in the place of the broken pipe and proceed with one injector.*

(Q) 109. If both injectors failed, what should the Driver do?

(十五)

問 103 冬天機車客車時暖汽之
汽表應定多少汽。

答 104 最少不能少過六十磅之
壓力。

問 105 一個機車大概有幾個拉
水泵。(射入器)

答 106 兩個，一個在司機那邊，一
個在司爐那邊。

問 107 假如司機這邊拉水泵(射
入器)不能用，司爐那邊
過水膠皮管子又破了，司
機當如何呢。

答 108 將司機這邊好的膠皮管
子折下，裝在司爐那邊，即
可用單拉水泵(射入器)
進行。

問 109 假如兩個拉水泵(射入
器)全失效，司機當如何
呢。

- (A) 110. *He should make sure that the steam valves to the injectors were properly open. Also the water feed valves from the tender.*

He may uncouple the rubber feed pipe between engine and tender, to see that the water supply is sufficient. Sometimes an air leak in the suction pipe is the cause of an injector failing. However if the Driver cannot get the injector to work, he must draw his fires and send for another engine.

- (Q) 111. *If a Driver should have to stop his train between two stations because the injectors failed, or for any other reason that may prevent him proceeding with his train, what arrangements would he have to make to obtain another engine?*

- (A) 112. *The Driver must send his fireman with the staff to the nearest station from which another engine can be obtained. He also inform the Guard of the train that he cannot move, and instructs him to protect both ends of the train, by sending his brakesman out with flags and detonators*

(十六)

答 110 司機當查驗實在，拉水泵（射入器）的汽門是否完全開開，還有水櫃來水閥（瓦路）可以將膠皮來水管卸脫，看來水是否够用，有時吸水管漏氣，拉水泵（射入器）因此失效，無論如何設司機不能使拉水泵（射入器）恢復工作，他須將爐火清出，並要救車。

問 111 設一司機因拉水泵（射入器）失效，總得在兩站之間停車，或因其他緣故，列車不能前進，司機當如何辦理，可得他機車之救助。

答 112 司機當派司爐（生火）持路簽到最近之車站，求其他機車救助，並通知車守，如車已不能行動，列車之兩端各須派鈎夫隨帶號旗及（響墩）信墩以事保護。

(Q) 113. When the fireman who has possession of the staff, arrives at the station, from where he requires another engine to bring failed engine in, to whom does he give the staff?

(A) 114. *The fireman must not give up possession of the staff to any body, but must give the Station Master full information regarding the nature of the breakdown, and the place at which the train is standing awaiting assistant engine, requesting the Station Master to immediately telegraph for another engine.*

(Q) 115. When the Relief engine arrives does the fireman hand the staff to the Driver of the Relief engine?

(A) 116. *No, he must keep possession of the staff until the Relief engine has arrived at the scene of the Breakdown, but must ride on the foot-plate of the Relief engine, and inform the Driver the nature of the failure, and at about what distance from the station.*

(Q) 117. When a person is unavoidably injured, or killed by engine when travelling between stations, what is the duty of the Driver of that engine?

(十七)

問 113 當司爐帶同路簽到站，從此可得一其他之機車，將失效之機車帶入站中，司爐將路簽交與誰，

答 114 司爐不能將他隨帶之路簽交與任何人，但必須將肇事之情由地點，完全告知站長，請彼立時發電要救援機車，司爐保持此所帶之路簽，等救車來站，

問 115 當救車來時，司爐將此路簽交與救車之司機麼，

答 116 不，司爐必須保持此路簽乘於救車上，並告知救車司機肇事情由離站多遠，直將救車帶到肇事地點，方將路簽交與救車司機，

問 117 列車行在兩站之間，設有人不能免於被機車所傷，或致命，則司機之職責為如何，

- (A) 118. *He must stop as soon as possible and report the accident to the Guard and give such assistance as may be required to the wounded man, or in the removal of the body. He must not allow his train to pass until the injured or dead person is removed from the track.*
- (Q) 119. What else should the Driver do?
- (A) 120. *He should stop his train at the next station and report the accident to the Station Master.*
- (Q) 121. Supposing a man who may be caught by a train when crossing a bridge, to avoid being struck by the Engine jumps over the bridge into the river, or on dry ground, what should a Driver do then?
- (A) 122. *He should act in the same manner as if the engine had struck the man. Stop and render assistance if possible, and if the man had disappeared in the water and cannot be assisted, train to be stopped at the next station and reported to Station Master.*
- (Q) 123. Should all such cases be reported by the Driver on reaching his home Shed?

(十八)

答 118 必須停車,愈速愈妙。報告此意外之事於車守,並與受傷人以必要之援助,或移動彼身。除將受傷或已死之身體移出軌道外,不准其車隊越行。

問 119 還有何事為司機應辦的。

答 120 彼當在下一站停車,並報告此意外之事於該站站長。

問 121 設一人行經橋上因要避免機車來撞。彼由橋上跳下,或落入河中,或落乾地。如此司機當如何處置。

答 122 他當案照機車撞人時一樣處置,停車,若能相助施以相當之援助,若人已落水不再見不能施救,則到下一站必要停車,將此事報告該站站長。

問 123 所有這宗事情司機回本車房時是當報告麼。

- (A) 124. *Yes, immediately on arrival.*
- (Q) 125. What is meant when an engine is said to be priming?
- (A) 126. *That water is escaping from the Chimney mixed with the steam.*
- (Q) 127. Is such working a condition bad and dangerous?
- (A) 128. *Yes, Because this must be too much water passing into the cylinders, which may cause a cylinder cover to be broken. It also washes out all the lubrication causing valves and pistons to run dry.*
- (Q) 129. What does the Driver do when his engine starts priming?
- (A) 130. *Closes the regulator a little and opens the cylinder cocks to allow the water in the cylinder to escape.*
- (Q) 131. Give some reason that will cause an engine to prime?
- (A) 132. *Salt water, a dirty boiler, Driver carrying too much water in his boiler.*
- (Q) 133. How much water should be carried in the Boiler when working trains?

(十九)

答 124 是,到時立刻報告。

問 125 機車噴水是怎麼回事。

答 126 是所存之水與汽混合,由煙筒內出來。

問 127 這樣是工作上一不好的情形麼,並危險麼。

答 128 是,因這是汽缸內存水特多,或汽缸蓋因此破裂,並且將汽油洗出,則鏽瓣(汽餅)及滑閥(錯汽門)即缺油。

問 129 設機車噴水司機怎樣作呢。

答 130 將汽門關一點,開汽缸(塞門)卡克,放出汽缸內的存水。

問 131 說幾樣機車噴水緣故。

答 132 水鹹,鍋爐鏽,鍋爐內水特多。

問 133 行車時鍋爐內當有多少水。

- (A) 134. *Not more than half full.*
- (Q) 135. How can the Driver tell how much water there is in the Boiler?
- (A) 136. *The amount of water in the boiler is shown by the Water guage glasses.*
- (Q) 137. How many water guage glasses are there generally?
- (A) 138. *Two, because if one becomes defective or breaks, the other will indicate the amount of water in the boiler until the other one is repaired.*
- (Q) 139. If both glasses become so defective that the Driver cannot see whether the Boiler has sufficient water, what should he do?
- (A) 140. *Throw out his fire because he may get so short of water that the fusible plug may blow out, and the crown of the firebox be seriously damaged. He should also knock down the brick arch, because lead plugs have been known to drop after the fire has been taken out, owing to the heat from brick arch left standing.*

(二十)

答 134 不要過半滿。

問 135 司機怎麼能說鍋爐內有多少水。

答 136 鍋爐內的水多少，是在玻璃水表上表示。

問 137 一個機車大概有幾個玻璃水表。

答 138 兩個，設有一個水表不好，或破裂，其他一水表尚能標示鍋爐內水之多少，直待所壞水表之修復。

問 139 設兩個水表均不好，司機全不能看出鍋爐的水够不够，司機將怎樣呢。

答 140 當將爐火清出，因恐水或許特少，將鉛堵燒化，甚至將火箱頂板燒傷極重，並當將火磚挑下，因火磚所留的熱度能將清過爐的火箱鉛堵燒化，這是人所共知的。

(Q) 141. Is this a serious matter for the Driver to run his engine short of water in the boiler?

(A) 142. *Yes, very serious as no excuse is accepted for so doing.*

(Q) 143. If a water guage glass breaks on the journey, when should it be replaced?

(A) 144. *As soon as possible.*

(Q) 145. By whom should it be replaced?

(A) 146. *By the fireman, under the Drivers instructions.*

(Q) 147. Why does not the Driver do it himself?

(A) 148. *Because he must always keep a sharp look ahead while train is running.*

(Q) 149. If a guage glass breaks at the end of a journey just previous to entering a running shed, who should replace that glass?

(A) 150. *The Driver and firemen before signing off duty. It should not be left broken or entered in the Repair book without very special reasons.*

(二十一)

問 141 司機行車時鍋爐缺水是他的重大錯處麼。

答 142 是的，是很重大的錯處，因為這樣作了是無可原諒的。

問 143 假如一個玻璃水表在路上破了，什麼時候換上，

答 144 愈快愈好。

問 145 應當誰換呢。

答 146 司機的分派，生火的換上。

問 147 因何司機不自己換呢。

答 148 因車行之時，司機必須永遠留神看望前方。

問 149 當行車終了，機車入車房時玻璃水表破了，應當誰換呢。

答 150 司機及生火在簽名下班前，須自己換好，如無特別緣故，是不當留下破的不管，或寫在修理帳上。

(Q) 151. Some old pattern engines are fitted with two cross head pumps, but have no injectors. How does Driver put water into the boiler of this class of engine, when the engine is standing in steam?

(A) 152. *With this class of engine no water can be put into the boiler after the wheels stop. The water level has to be kept up to allow for standing. This is good for the tubes and firebox because cold water can not be put into the boiler when standing, and the circulation stopped.*

(Q) 153. Can injectors be worked so that it is seldom necessary for them to be used when engine is standing still?

(A) 154. *Yes, it is advisable for Drivers to avoid as much as possible using their injectors while standing in steam at station.*

(Q) 155. Is it necessary that an engine should blow off steam through the safety valves, at least once on every trip?

(二十二)

問 151 有的舊式機車，用兩個十字頭帶的搗水泵（注水唧機）、沒有拉水泵，（射入器）、當機車停車要汽時，司機怎樣向鍋爐內上水呢。

答 152 這一種機車車輪停止後，即不能再向鍋爐內上水，所以水須多上够停車用的。此與鍋爐管子及火箱均有好處，因為當機車靜止水之轉動亦靜止時，冷水不能注入鍋爐。

問 153 拉水泵的機車亦能如此用法麼，當機車靜止無須注水。

答 154 是的，可以囑告司機當機車在站停止，可免用或少用拉水泵注水。

問 155 是一個機車，行一次車中，應當至少要有——次讓汽從平安閥（壓汽或放汽瓦路）冒汽麼。

(A) 156. *Yes, so that the Driver may know they are working properly.*

(Q) 157. Is it very important that these safety valves should be working properly on every trip?

(A) 158. *Yes, because the neglect of not seeing that the Safety valves were working properly, may cost him his own life and that of many other people including his firemen.*

(Q) 159. If the Steam gauge becomes defective on a journey what would the Driver do?

(A) 160. *Work on to the nearest place that he could get it replaced.*

(Q) 161. Then it is necessary that he should try his safety valves before starting his journey, if possible?

(A) 162. *Yes, otherwise, should his Steam gauge become defective on the journey he would have a very uncomfortable trip.*

(Q) 163. What pattern lubricators are generally used to lubricate the steam chest valves and pistons in the cylinders?

(二十三)

答 156 是的,如此司機可知平安
閥的工做正當與否。

問 157 每次行車對於平安閥工
做正當是極重要的麼。

答 158 是的,因為要疏忽查看了
平安閥工做的正當,是與
自己的生命,生火的生命
均有關係。

問 159 設如行車途中汽表失效,
司機怎樣呢。

答 160 行車行至最近可以換汽
表之地再換。

問 161 如此則在行車之先,當將
平安閥對准,亦是很須要
的。

答 162 是的,否則汽表在途中失
效,司機行車就極困難了。

問 163 向汽箱中錯汽門及汽缸
中汽餅注油(油潤法)。大
概用何種注油器(油潤
器)。

- (A) 164. *Sight feed and Mechanical lubricator.*
- (Q) 165. Which do Drivers generally think are the best?
- (A) 166. *The sight feed lubricator, because they can see the oil working.*
- (Q) 167. Sometimes with a sight feed lubricator the oil gauge becomes full of oil while engine is working a fast or heavy train. Give a reason why this should happen?
- (A) 168. *When the engine is working very heavy with short cut-off, the steam in steam chest can hold the oil back. Sometimes by closing the regulator a little, the glass will clear itself.*
- (Q) 169. How often should a Driver report that the Sight lubricator requires thoroughly cleaning?
- (A) 170. *Once every month.*
- (Q) 171. May ordinary engine oil be used for the steam chest and cylinders?
- (A) 172. *No, only the cylinder oil provided should be used.*

(二十四)

答 164 走油壺(透明油潤器)、及
壓油機(壓力油潤器)。

問 165 司機大概想那一種好用。

答 166 走油壺,因為能看見走油。

問 167 有時機車行駛快車,或重
列車,走油壺的玻璃管內
油全滿了,說一個緣故因
何這樣。

答 168 當一機車極力駛行,閉斷
點再短,(錯汽門關閉正汽
快,或進汽缸的汽少)則汽
箱之汽,能阻止油流入,有
時少關汽門,油壺玻璃管
即可清亮。

問 169 司機應當隔多少日子,報
告走油壺楷表乾淨。

答 170 一月一次。

問 171 是尋常澆機車的油,就可
向汽箱汽缸內澆麼。

答 172 不,一定要用汽缸油。

(Q) 173. For what reason must cylinder oil always be used?

(A) 174. *Because the heat of the steam chest and cylinder is too great for ordinary oils to be used. Ordinary oil becomes carbonised and causes the valve faces and walls of cylinders to cut.*

(Q) 175. Do the valves and Piston require plentiful lubrication or not?

(A) 176. *No, very little oil is required. but it must be supplied very regularly.*

(Q) 177. In some cases, one engine uses much more cylinder and engine oils than other engines of the same class on the same work. How do you account for such differences?

(A) 178. *The lubricators may be defective, or it may be carelessness on the part of the Driver and firemen having the lubricator opened too wide, and trimmings too thin. If it is due to defective lubricators they should be reported in the repair book as soon as possible, and Driver should carefully watch his engine trimming to see they are neither too thick or too thin, and to see that his fireman removes all trimmings at the end of a journey to prevent waste of oil.*

(二十五)

問 173 因為什麼緣故必要總澆
汽缸油呢。

答 174 因為汽箱汽缸內的熱度，
比較尋常的油能受的熱
度特高，尋常的油就熱飛
了，所餘炭質就能將汽孔
面汽缸筒子磨壞。

問 175 是錯汽門與汽餅得要很
多的油澆他麼，或者不用
很多的。

答 176 不用，只須很少一點，但必
須有一準的供給（澆法）。

問 177 有許多次同一類的機車，
同一樣的工作，一個機車
用的汽缸油，並機器油，比
別別的機車費的很多，這
費了的怎樣算呢。

答 178 或因注油器失效，或為司
機生火不與支迷特細，果如
的因注油器失效，他們應
當趕快報告修理，司機更
當注意機車上支迷不要
太粗，不要太細並行車
了時，要監視生火將支
拔，省得費油。

(Q) 179. Give some reasons for engine some times having an axle, or any other bearing suddenly running hot, although previously giving no trouble?

(A) 180. *A broken spring hanger or spring, a cotter pin hammered down too tight, a brass bush loose in the eye of rod turning around sufficiently to prevent the oil passing through the hole in the bush to the bearings. Dirty oil, dirty trimmings not giving sufficient oil. A thin trimming or a lubricating pin valve slacking back, running through a sand storm.*

(Q) 181. Can most of these reasons be avoided if the Driver is careful?

(A) 182. *Yes,*

(Q) 183. What is the difference between a sight feed lubricator and a Mechanical lubricator?

(A) 184. *The first one works oil by steam pressure, while the other forces oil through to the different parts by a pump action, worked by a connecting rod to the valve motion.*

(二十六)

問 179 說幾個緣故，有時機車的軸及其他機件爲什麼先跑前沒有麻煩，忽然間就跑熱了。

答 180 彈簧吊鼻羅絲折了，或彈簧折了，大箭打的特緊，圓瓦鬆了，轉動，油孔不通，油流不下去，油髒，及支迷髒，下油不尅，支迷細，或鐵支迷鬆回，或因髒東西堵住，及經過風沙之日等緣故。

問 181 如果司機加小心上邊說的幾種緣故能够免除麼。

答 182 能够免除。

問 183 走油壺（透明油潤器）與壓油機（壓力油潤器）有什麼分別。

答 184 頭一個（走油壺）是用汽的壓力，那一種（壓油機）是用泵式擠力，擠到各處，由相連的油機把，被滑閥（錯汽門）動作帶動之。

(Q) 185. What is the load for 126, 158, 193 class?

(A) 186. *This question to be answered in accordance with loads stated in official load table.*

(Q) 187. When a Driver discovers his train has become divided, what should he do?

(A) 188. *He should immediately try to attract the Guards attention by blowing the engine whistle.*

(Q) 189. Should the Driver apply his brakes?

(A) 190. *No, not until he is satisfied that the rear portion has been brought to a standstill, or that he is at the time travelling on a up—grade. Driver should not apply his brakes until he is satisfied that the rear portion cannot collide with the front portion.*

(Q) 191. If on arrival at a station it is found that some cars at the rear have become uncoupled, and left in the section what should the Driver do?

(二十七)

問 185 126 158 193 三種機車之運載重量如何。

答 186 此問題之答案，須照載重表中之規定數目言之。

問 187 當司機看出他的車隊分離，他應當怎樣的辦。

答 188 他應當立刻鳴汽笛，警告車守注意。

問 189 司機應當用開麼。

答 190 不，不等到已知後段車隊已經停止，或行經上坡道時，不能用開。司機非知到後段車，撞不了前段車隊時，不能用開。

問 191 假如車隊到站，看出後部幾個車已脫鈎，尙留在段內，司機怎麼樣呢

- (A) 192. *Immediately inform the Station Master on duty, that precaution may be taken to prevent another train entering that section, and retain the staff until he is satisfied that the line has been cleared either by himself or by other means.*
- (Q) 193. What is the maximum speed allowed when running tender first?
- (A) 194. *15 miles per hour.*
- (Q) 195. What is maximum speed of cars being pushed through a section by an engine?
- (A) 196. *10 miles per hour.*
- (Q) 197. What should be the attitude of Drivers when receiving instructions from Superior Officers in any of the Railway Departments?
- (A) 198. *They should obey such instructions so far as the Regulations of the Railways allow, but always first remembering that the safety of the travelling public and their goods, must be the Driver's first consideration.*
- (Q) 199. Should they be ordered to do work that they consider not really their duty, how should they act?

(二十八)

答 192 立時通知當班站長，設法預防及禁止其他車隊駛入該段，並保存該段路籤，直到路綫業已清理無阻礙（或為自己清理或其他方法）

問 193 當水櫃在前，最大速度應行若干。

答 194 每點鐘行十五英里

問 195 當倒頂壹列車在段內，最大速度應行若干。

答 196 每點鐘行十英里。

問 197 司機當接受鐵路上任何部分高級長官之指揮時，應取何種態度。

答 198 只不出鐵路規章範圍以外者，皆應服從，但記準保持行車公眾及客貨之安全，為司機第一要務。

問 199 設非司機職分內事，而派令去作，司機當如何。

- (A) 200. *They should promptly and courteously obey the order, and report such irregularity on their return to their Home Shed.*
- (Q) 201. On arrival at the Loco Shed after working train, what should the Driver do?
- (A) 202. *Examine his engine, and book off duty in the book kept for that purpose.*
- (Q) 203. What is the reason for booking off duty?
- (A) 204. *So that the men in charge of working arrangements at that Shed have a record showing how long this man has been on duty, and arrange for him to have sufficient rest when necessary.*
- (Q) 205. What kind of brake is the Westinghouse Brake?
- (A) 206. *Compressed Air brake.*
- (Q) 207. How is the air compressed?
- (A) 208. *By a Steam pump.*

(二十九)

答 200 亦應取恭敬而敏捷態度服從之,事後回本車房再行報告此不合平常法則之事。

問 201 行車終了,到車房時司機作什麼呢。

答 202 查驗機車,登記下班鐘點在專為記載上下班賬內。

問 203 因為什麼緣故要登記下班鐘點。

答 204 如此車房管理派車的人有一記載,可查出此人已工作多少時,於必要時能替他勻出充分的休息。

韋氏氣軛

(空氣閘或風閘)

問 205 韋氏的閘,是怎麼一種閘。

答 206 壓緊了空氣的閘。

問 207 空氣怎樣壓呢。

答 208 用一汽唧機(風泵)。

(Q) 209. Give a rough description of the Westinghouse pump.

(A) 210. *It is comprised of two cylinders, one is a steam cylinder with valves and piston to regulate the steam, and is connected to another cylinder which has valves and Piston to pump air from the Atmosphere.*

The piston in the Steam cylinder is connected to the piston in the air cylinder, by a piston rod.

(Q) 211. How many valves usually has the Air cylinder?

(A) 212. *Four, two suction valves and two delivery valves.*

(Q) 213. How does the air get into the Air cylinder?

(A) 214. *Through a perforated opening usually fixed on the side of Air cylinder of the pump, and then through the suction valves.*

(Q) 215. How does the air get out of the pump?

(A) 216. *Through the delivery valves to the Main reservoirs.*

(三十)

問 209 說韋氏風泵的大畧

答 210 韋氏風泵有兩個缸形的一個是汽缸。有關(瓦路)與汽餅。調整汽。並與其他一缸相連。亦有關(瓦路)與汽餅。可將天空的空氣抽擠而入(泵風。)汽缸內汽餅與空氣缸內的氣餅用一氣餅桿相連。

問 211 空氣缸內尋常有幾個閥(瓦路)。

答 212 四個,兩個進氣閥(進風瓦路)。與兩個出氣閥(截風瓦路)。

問 213 空氣怎樣到氣缸內。

答 214 從常作在氣缸旁邊的一個穿孔。並進氣閥(進風瓦路)。

問 215 空氣怎樣出氣缸呢。

答 216 從出氣閥(截風瓦路)到儲氣主筭(總風缸)

(Q) 217. What are these main reservoirs for?

(A) 218. *To store a sufficient supply of air to keep all auxiliary reservoirs supplied with air as required.*

(Q) 219. How does a Driver know how much air there is in the Main reservoir?

(A) 220. *By the pressure guage situated in the Cab of the engine.*

(Q) 221. What is the difference between this guage and other guages fixed in the Cab?

(A) 222. *This one has two pointers, one is Red and the other is black.*

(Q) 223. Which pointer shows the pressure in the Main reservoir?

(A) 224. *The Red pointer.*

(Q) 225. Of what use is the black pointer?

(A) 226. *The black pointer shows the amount of pressure in the train pipes.*

(三十一)

問 217 儲氣主笛(總風缸)是作什麼用的。

答 218 存儲足用的空氣(風)。在必要時供給儲氣分笛(車底閘存風缸)。

問 219 司機怎樣知到儲氣主笛(總風缸)裏有多少空氣(風)呢。

答 220 機車司機棚(樓子)內。裝有壓力(空氣或風)的表。

問 221 這個表(風表)，與樓子內其他各表有什麼分別。

答 222 這個表有兩個針。一個是紅的。那一個是黑的。

問 223 那一個針指明儲氣主笛(總風缸)的壓力。

答 224 紅的。

問 225 黑針是作什麼用的。

答 226 黑針是指明車上風管內有多少壓力。

(Q) 227. How much pressure should the Red pointer show, when the engine is coupled to a train?

(A) 228. *Ninety pounds.*

(Q) 229. If the Red pointer register 90 lbs, how much should the black pointer show?

(A) 230. *Seventy.*

(Q) 231. Why does the Main reservoir hold a higher pressure than the train pipe line and auxiliary reservoirs?

(A) 232. *To ensure a quick release of all the brakes when the Driver places the Driver's brake valve in the release position, after a brake application.*

(Q) 233. What is the Driver's brake valve?

(A) 234. *This is a valve which has a handle by which the Driver applies or releases the brake.*

(Q) 235. How many different positions can this handle be placed in?

(三十二)

問 227 當機車掛好一隊列車，紅針當指多大壓力。

答 228 九十磅。

問 229 設紅針指九十磅黑針應指多少。

答 230 七十。

問 231 因為什麼儲氣主筒（總風缸）存的壓力，要高過車上風管並儲氣分筒（車底閘存風缸）。

答 232 當落閘之後，司機將司機的閘閘（瓦路）放在釋放點（鬆閘或回風），可保鬆閘鬆得快。

問 233 什麼是司機的閘閘（瓦路）。

答 234 這是一個閘（瓦路），上連一個把，司機用他落閘或鬆閘。

問 235 這個閘把有幾個不同的地方可放。

(三十三)

答 236 四個。

問 237 說說這四個地方。

答 238 (一)釋放。(提閘)(鬆閘或回風)(二)行車。(三)中立。(各孔關閉)(四)落閘。

問 239 緊急落閘是什麼。

答 240 當落閘又快又用全力。

問 241 當機車掛妥一列車時。閘把應當放在什麼地方。

答 242 在第二個地方。就是行車的地方。

問 243 什麼時候這個閘把總放在第三個地方。(就是中立地方)並在行車或停掛一列車時。永遠不動他。

答 244 這個把僅只在兩個機車同掛行一列車時。放在這個地方。頭一個機車上使用閘。第二個機車上將閘閘(瓦路)放在中立的地方。(第三個地方)關上截風塞門。(卡克)如此保守關閉及閘閘(瓦路)在中立點。直到頭一個機車摘行。

- (A) 236. *Four.*
- (Q) 237. Explain the four positions.
- (A) 238. (1) *Release* (2) *Running*. (3) *Neutral* (4) *Application*.
- (Q) 239. What is an emergency application?
- (A) 240. *When the brake is applied quickly and with full force.*
- (Q) 241. When engine is attached to a train, what should be the position of the brake handle?
- (A) 242. *In the number 2 Position or Running position.*
- (Q) 243. When is the brake handle always kept in the No. 3 position, (or Neutral position) and left in that position while train is running, or standing attached on a train?
- (A) 244. *The handle is only left in this position when two engines are working a train. The front engine then works the brake, while the Driver of the second engine, places the brake valve in the Neutral position, No. 3, closes the Cut out cock, which remains closed, and brake valve in Neutral position until the Front engine is again uncoupled.*

(Q) 245. With brake handle in Neutral position and cut out cock closed. can the Driver apply the brake in the case of emergency without again opening the Cut-out-cock?

(A) 246. *Yes, but he cannot release the brake again without opening the Cut-out-cock.*

(Q) 247. Why?

(A) 248. *Because the air that has been allowed to escape from the Train pipe through the hole in the Driver's valve to the Atmosphere, cannot be replaced with air from the main reservoir while this Cut-out-cock is closed.*

(Q) 249. What does this show you?

(A) 250. *That the air allowed to escape to apply the brake, must be replaced to release the brake.*

(三十四)

問 245 閘閥放在中立點,並關上截風塞門(卡克)司機在緊急時能够不用開開截風塞門(卡克)就落閉麼。

答 246 能够落閉,但是若不開開截風塞門,(卡克)不能鬆閉。(回風)

問 247 因爲什麼呢。

答 248 因爲列車管子的空氣(風)可以從司機閘閥(瓦路)孔,(逃到天空)放出,截風塞門(卡克)若是關閉,儲風主笛(總風缸)的空氣(風)不能補入。(列車管子)

問 249 這個能看出什麼來。

答 250 空氣(風)放出(列車管子)就是落閉若要鬆閉,必須將空氣(風)補入。(列車管子)

(Q) 251. What are the positions of the Red and Black pointers of the Air guage, when the brake handle is in the No. 1 or release position?

(A) 252. *They are both together registering the same pressure.*

(Q) 253. What is the position of these pointers when the handle is moved to the No. 2 or Running position?

(A) 254. *The black pointer stops at 70 while the Red pointer goes on to 90.*

(Q) 255. What causes the Black pointer to stop at 70 while the Red pointer moves on to 90?

(A) 256. *There is a small valve fitted on the train pipe which can be adjusted, and regulates the supply of air to train pipe with the handle in this position.*

(Q) 257. Why doesn't the Red pointer pass the 90 lbs mark?

(三十五)

- 問 251 當閘把放在第一個地方，(就是釋放點) (鬆閘或回風) 空氣表 (風表) 的紅黑針指在什麼地方。
- 答 252 兩個同指一樣的壓力。
- 問 253 設閘把推到第二個地方。(行車點) 這兩個針指在什麼地方。
- 答 254 黑針停在七十磅彼時紅針走到九十磅。
- 問 255 什麼緣故紅針升到九十，黑針到七十為止呢。
- 答 256 閘把放在這個地方，有一個小閘 (瓦路) 裝在列車管子上。(此瓦路即在司機閘瓦路下面) 可以定好並管理去列車管子的空氣。(風)
- 問 257 因為什麼紅針不過九十磅呢。

(A) 258. *Because the air pump stops.*

(Q) 259. What causes the air pump to stop?

(A) 260. *The pump Governor attached to the Steam pipe which supplies steam from boiler to the pump.*

(Q) 261. How does this Governor work and what causes it to stop the pump?

(A) 262. *When the air in the Main reservoir reaches 90 lbs. pressure, through a small pipe leading from the Main reservoir to the Governor, air passes to the Governor, and when the pressure reaches 90 lbs. it is strong enough to overcome the strength of the spring, and causes a valve inside the lower part of the Governor to be pressed down, stopping a further supply of steam passing to the pump, thus causing the pump to stop.*

(Q) 263. If the air pressure leaks away, or the pressure of the Main reservoir is reduced what happens?

(三十六)

答 258 因爲氣唧機(風泵)停止工做。

問 259 因爲什麼氣唧機(風泵)停止工做呢。

答 260 因爲由鍋爐到氣唧機(風泵)的汽管子上,裝有氣唧機調整器(勾溫納兒)

問 261 氣唧機調整器(勾溫納兒)怎樣能停止氣唧機(風泵)的工做呢。

答 262 儲氣主笛(總風缸)的氣(風)若到九十磅壓力,由一個小管子引到氣唧機調整器(勾溫納兒)內,則其壓力即勝過彈簧之力,將內部的一閘(瓦路)壓下,關住去氣唧機(風泵)的正汽,則氣唧機(風泵)的工做即停止。

問 263 設如空氣壓力(風力)漏洩,或儲氣主笛(總風缸)壓力減少,將如何。

- (A) 264. *The air pressure inside the Governor becomes too weak to hold down the valve controlling the steam, so the valve lifts and steam again passes to pump, which again starts to work.*
- (Q) 265. Can the spring inside the top of the Governor be adjusted to stop the pump at higher or lower pressures?
- (A) 266. *Yes, by tightening or slacking back the nut, put at the top of the Governor for that purpose.*
- (Q) 267. Describe roughly how the air passes from the main Reservoir to auxiliary reservoir, on the cars attached to engine?
- (A) 268. *The air passes from the Main reservoir through a pipe connected with the Driver's brake valve, in which there is an opening which allows it to pass through into the train pipe, which carries it to the triple valves on the cars. It passes through these triple valves into the auxiliary reservoir, and remains there until the brake is applied.*

(三十七)

答 264 則氣唧機調整器(勾溫納兒)內氣壓力亦漸弱,壓不住關汽的小閘。(瓦路)小閘(瓦路)提起,汽又通過氣唧機。(風泵)則氣唧機(風泵)又工做(泵風)。

問 265 氣唧機調整器(勾溫納兒)內,上部的彈簧能够定準在高壓或低壓,均能停止氣唧機(風泵)的工做麼。

答 266 能够,加緊或放鬆調整器(勾溫納兒)的上頭羅絲母,就是爲這個用意。

問 267 說說大概機車儲氣主笛(總風缸)的氣怎樣到了車上儲氣分笛(車底下開存風缸)

答 268 氣(風)從儲氣主笛(總風缸)經過一條管子,連到司機開閘, (瓦路)開閘上有管孔通入列車管子,順着管子到各三通閘。(瓦路)再經過三通閘(瓦路)到儲氣分笛。(車底開存風缸)此氣(風)在此存留,直等落開用之。

- (Q) 269. What will cause the brake to go on?
- (A) 270. *Any reduction of air in the train pipe, which the Air pump cannot replace quick enough.*
- (Q) 271. Then it is by a reduction of air in the train pipe, that the brake blocks are brought in contact with the wheels?
- (A) 272. *Yes,*
- (Q) 273. How are the brakes released?
- (A) 274. *By allowing a fresh supply of air to flow from the main reservoir into the train pipes, and triple valves, to replace the air used in applying the brake. This causes the triple valve to move, and open an exhaust port, which allows the air to escape from the brake cylinder, and releases the brake.*
- (Q) 275. How does a reduction of air in the train pipe cause the brake to apply?
- (A) 276. *A reduction of air in the train pipe causes the triple valves to move, and open a port, which allows air to flow into the brake cylinder, forcing the piston out. This moves the brake rods causing the brake blocks to come in contact with wheels.*

(三十八)

問 269 怎樣情由能教閘抱上。

答 270 列車管子內氣壓(風壓)減少,而氣唧機(風泵)所補入壓力不够快,就抱閘。

問 271 如此只要減少列車管子的氣(風)閘就抱在車輪上麼。

答 272 是。

問 273 閘是怎樣鬆法。

答 274 用儲氣主笛(總風缸)的新氣,讓他流入列車管子並三通閘瓦路,將落閘所費的氣(風)補足,由此能將三通閘(瓦路)活動,開一洩氣孔,放出風閘缸中餘氣,則閘及放鬆。

問 275 怎麼列車管子內的氣(風)一減少,就能落閘呢。

答 276 列車管子的氣(風)一減少,三通閘(瓦路)即活動,放開一孔讓儲分笛(車底閘存風缸)的氣(風)流入鞴笛(風閘缸)推出風餅桿,則閘拉條即活動,使閘瓦切近車輪。

- (Q) 277. Sometimes a triple valve leaks badly. When a triple valve leaks, what happens?
- (A) 278. *The brake blocks drag against the wheels, and causes the train to pull very heavy.*
- (Q) 279. What should be done in such a case?
- (A) 280. *The Cut-out-cock on the pipe leading to that triple valve should be closed, and the air release cock opened, until all the air has been allowed to escape from that triple valve, and then the brake can not be used on that car.*
- (Q) 281. Sometimes a car is left standing with the air brake on, after it has been detached from a train. How is the brake released when this happens?
- (A) 282. *The cord (or wire) attached to the release valve underneath the car is pulled, until all the air that had been left in the brake cylinder has been allowed to escape, through the exhaust port of triple valves. This releases the brake.*
- (Q) 283. How does the guard of the train know that all the air pipes on the train are coupled up, and air cocks open?

(三十九)

問 277 三通閥(瓦路)時常漏氣特甚,當漏氣有何現象.

答 278 開瓦即抱車輪,因而所拉之列車就覺極重.

問 279 如遇這種事當如何呢.

答 280 關上三通閥(瓦路)的截風塞門.(卡克)並開放餘氣(放風)塞門.(卡克)則此車之閘即不能再用.

問 281 有時一車由列車摘下後,閘猶抱住車輪,設遇此種事,閘須怎樣鬆法.

答 282 將車下連到放餘氣塞門(放風卡克)的繩子或鐵絲一拉,讓所有軛笛(風閘缸)內餘氣皆由三通閥(瓦路)漏氣孔放出,閘即鬆開.

問 283 車守怎樣能知道一列車的風閘管子是接好,風塞門(卡克)閉是着.

- (A) 284. *By the air guage and test cock in the Brake van.*
- (Q) 285. Why is the W.H.B. very suitable for Railways?
- (A) 286. *Because if air pipe connections break or any other thing happens to cause the air to leak away rapidly, the train stops itself.*
- (Q) 287. What causes brakes to go on when an application is made by the Driver?
- (A) 288. *The Driver allows air from the train pipe to escape through a hole in the Driver's brake valve. This reduces pressure in the train pipe, and causes brakes to go on.*
- (Q) 289. How much should be allowed to escape at one time in an ordinary application?
- (A) 290. *About 7 to 8 lbs.*
- (Q) 291. If an air brake hose pipe bursts on journey and no spare hose is carried on engine, what should Driver do?
- (A) 292. *Remove one hose pipe either from front of his engine, or from the rear of B.V. and replace as soon as possible.*

(四十)

答 284 由守車內風表,並試風塞門。(卡克)

問 285 因為什麼這種韋氏風閘在鐵路上是極合用的。

答 286 因若遇見無論什麼事,風管之連接中斷,或漏風甚速,則列車能自己停止。

問 287 當司機一落閘,閘什麼緣故就抱閘呢。

答 288 司機讓列車管子的風,從司機閘閘(瓦路)孔中放出,如此則減少列車管子的風壓,所以就抱閘。

問 289 在尋常落閘時,每次準落多少風。

答 290 大約七八磅。

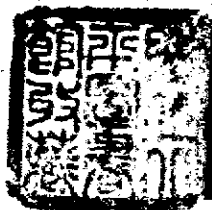
問 291 如車行中途風閘膠皮管子破裂,機車上又未帶備用管子,司機當如何呢。

答 292 將機車前頭的或守車後頭的管子卸下,換去壞管子,越快越好。

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