Painting and Lettering
The 20th Century Limited of 1938 and Subsequent Changes

A Second Look
by H. L. Vail, Jr.

Recently, long elusive details have come to the fore, and of course show that portions of the original discourse on the subject (Central Headlight, Feb. 1977) are incorrect. This usually occurs shortly after publication, but in this case, it has taken over six years.

One of the reasons for the original research on this subject was that a vast amount of misinformation was being circulated in the railroad modeling field. Shortly after the original article was published in 1977, a manufacturer of HO gauge equipment brought a set of “1948” Century equipment to market, along with a card “Good for 1 set of “Champ” Decals.” Due to the work of “Rich” Meyer of Champ, the decals were produced in the proper “Aluminum Grey” lettering of the prototype. The effect, when compared to the previously available and incorrect white, can only be described as remarkable. There are even today, skeptics, who when asked to identify the color of the lettering on NYC baggage car 9108 belonging to the Midwest Railway Historical Foundation and others at Beech Grove, existing today in NYC paint (dark grey), will say “white” when it is actually “Aluminum Grey,” (DuPont Dulux 95-7581).

Now that another builder (Sunset) has imported an “0” gauge (1/4”=1 ft.) 1938 Century, and two manufacturers are releasing the train in “HO”, there is renewed interest in that train, in its original paint, lettering, and striping scheme.

Recently, in this regard, Mr. Gerald Brimacombe of Minneapolis, Minnesota, formerly of Rochester, New York, decided to approach DuPont regarding matching the 1938 colors (and ’48 as well) as listed in the first “Headlight” article. The result of this effort is that the original numbers listed have been discredited, being those colors listed as “Light Polychromatic Gunmetal” DuPont #8576 and “Dark Polychromatic Gunmetal,” DuPont #8592. The samples made to the formulas as they exist turn out to be a pale tan shade, and a dark strongly polychromatic gray, respectively. More research on these numbers needs to be done!

At the time the first article was being prepared, Mr. Arthur Dubin forwarded a photo of the Pullman “City of Cleveland” taken 1/17/38 at the Pullman plant in what might be called a mysterious paint scheme. Mr. Dubin had no information regarding the colors, and noted that the car was obviously incomplete as can be determined by the lack of interior furnishing, and he wished any information we had (none).

The photo is printed here, not to confuse the situation, but to determine the facts surrounding the case at that time should anyone with such firsthand knowledge be reached by this publication. Maybe the “light polychromatic gunmetal” and “dark polychromatic gunmetal” referred to in the “Pullman Painters Notebook,” now considered questionable, were the colors on this car.

Another question that has arisen concerning the ’38 Pullman equipment is the significance of “Key Lot #6508.” It was the practice of Pullman Standard to assign a “Key Lot” to which all details common to subsequent separate car lots for a particular customer could be assigned. Thus the paint colors, the striping arrangement, and the design of letters and figures used in lettering both the railroad and Pullman cars were assigned to the “Key Lot.”

Part of the problem of establishing the actual shades of grey, particularly the “light” is that each of those of us who remember the train, remember it under different
and varying circumstances, and the tendency is to rely on "memory" rather than fact. DuPont has kept meticulous paint matching records, and can normally be relied upon. Sherwin-Williams, however, has no record of Opex Blue, other than the fact that it was the blue in their line of "Opex" lacquers. This also brings to the fore the fact that the train was originally painted with nitrocellulose lacquer, which, as those of us who are able to remember automobile finishes of the 30's, does not weather too well. Since few photographers used Kodachrome in 1938, with its ASA 8 rating which limited its "action" capability, and those who used it later (like myself in 1946) were photographing a "wartime faded paint job," the original true hue and shades are hard to prove except for additional analysis, as no drawings or specifications giving the color numbers used between the questionable numbers of 1938 and 1945 have been found.

In March 1945, EMD delivered the first E-7A passenger units, 4000-4001 and in October 1945 4004-4007, and "B" units 4100-4103. These units were painted with Duco (nitrocellulose lacquer) to match the then current "Century" paint arrangement, light grey body, with dark grey window panel, with "imitation aluminum" lettering and striping. EMD drawing #8091461, dated 1/11/1945, "Styling and Painting," First used on E-639 New York Central Passenger loco calls for:

1. Light Grey - Duco, color match (Dulux 88-8234)
2. Dark Grey - Duco, color match (Dulux 88-8235)
3. Black - DuPont Duco 246-2504
4. Imitation Aluminum - DuPont Duco 246-34793
5. Red - DuPont Duco 246-9089R
6. Black - DuPont Dulux 88-005

(per drawing) 1 - Body above and below "lightning stripe", including skirt between the trucks, 2 - lightning stripe on nose (A units) and sides, 3 - blind ends, 4 - striping, 5 - Background of nose herald, 6 - trucks and underbody (including fuel and water tanks).

The "246" prefix denotes DuPont nitrocellulose lacquer, and the "88" prefix DuPont Dulux, medium oil, air dry, alkyd enamel. These units were thus painted to match the "Century" as it already existed and therefore the shades of grey used (must have) matched the shades used on the existing equipment.

The earliest record of "reversing" the greys is the "Pullman Painters Notebook," which indicates that on 11/22/46, Pullman car "Mahopac Falls" was the first car shipped from Calumet shop with the greys reversed. No change was made in the shade (or paint numbers) of the two greys. The striping remained the same as before, aluminum with black edging. There is photographic evidence of this scheme in various publications (Beebe "20th Century," Stauffer "Thoroughbreds," Beebe and Clegg "The Trains We Rode" Vol. I) on both the "Century" and the "Southwestern." Pullman cars were repainted in this manner on a continuing basis, although your author has no record of which cars were done before the "1948" scheme was implemented. This reversed color scheme is shown in the photo of the rebuilt Pullman "Manhattan Island," previously incorrectly designated on Page 19 of the February 1977 "Headlight."

Apparently the original intention for decorating the "Postwar" equipment, was to continue with the same multi-striped "reversed" scheme, with the only exception that the striping and lettering to be "DuPont Co.'s Dulux aluminum Grey T-95-X-7246," this being a quotation and summary of the facts in paragraph 137b of the "General Specifications for 200 steel passenger cars for account of New York Central System Lot 6789 and 6790 placed January 26, 1946" (Pullman Standard Car Mfg. Co.) However, as we all know, the striping was

**Figure 1 - Page from Pullman Co. "Painters' Notebook" showing the "reversal" of the grays. Courtesy of Arthur D. Dubin.**

1939-built Pullman (18 roomette) "City of Springfield" showing 1939 revised striping arrangement. From SKF advertisement in 1940 Car Builders Cyclopedia.

Pullman (10-5) "Cascade Glade" of the 1938-built lot, running through Jackson, Michigan in the summer of 1940. Although in 1939 style striping, the roof appears to have been re-coated with the result that the eave molding, normally aluminum, has been, in error, covered. The eave molding stripe and the bottom of the side sheet stripe were not deleted until November 2, 1942. J. Tarbell photo, print by T. Bailey.
Pullman “Manhattan Island” with “reversed grey” paint scheme completed sometime after November 22, 1946. This is the rebuilt car to Pullman plan 4079 A, 4 double bedroom, buffet, lounge observation, with type 41-HR trucks. Photo from collection of George E. Votava.

further simplified. To add further confusion to the shades of grey, these specifications call for “Mercury Gray CE-4419” on the “Girder below window, letterboard, and ends of car,” and “Century Light Gray” in the Pier Paneling (window area). By the time this equipment was delivered in 1947 and 1948, the “Dark” was designated as Dulux Dark Gray #88-23854, and the “Light” as Dulux Century Light Gray 88-8234 on NYC drawings.

Meanwhile, with the planning now in place to continue with a basic dark grey body with light grey window panel, the second order for E-7A and B passenger units from Electro-Motive beginning with 4008 and 4104 in April 1947, with revised sharp cornered “lightning strips,” were delivered with this “reversed” color combination, and the same DuPont numbers for the matching greys as on the first units (4000-4007, 4100-4103) (Light Grey 88-8234 and Dark Grey 88-8235). Note the change to 88 prefix Dulux enamel. As these units were painted to match the passenger cars, the difference in the number for the dark grey used on the cars can only, at this point in time, be justified by a change in the pigment systems for that color required by a change in the enamel vehicle, not a change in the color itself.

The next difference in paint numbers occurred on locomotives when the finish returned to “Duco” nitrocellulose lacquer. The numbers were Dark Gray: DuPont #254-23854 and Light Gray: DuPont #254-35453. Here it is noticed that the Dark Grey has the same color number 23854 in nitrocellulose lacquer, prefix #254, as the car Dulux “medium oil, air dry alkyd” prefix #88. However, the “Century Light Gray” in Duco has color number 35453 while in Dulux the color number 8234. The Duco “254” prefix denotes a nitrocellulose lacquer with addition of “free oil” or “plasticiser” to make the paint film more flexible (less brittle). The “93” prefix denotes alkyd enamel striping material for “cup gun” application.

Further change on passenger cars occurred about 5/1/58 with a change from Dulux 88-(medium oil alkyd) to Dulux 83-(now 183) alkyd using a “shorter oil” base than the “88” material. The “88” was a “brushing” formula, also thinned and sprayed, and the “83” a faster drying “spraying only” formula.

The last color reference number change on passenger cars occurred in mid 1960, when the Dark Gray was changed from 83-23854 (DuPont Dulux) to 83-67117, and the Light Gray was changed from 83-8234 (DuPont Dulux) to 83-35453. Here the number is the same as the earlier locomotive “254” lacquer. Nobody I know noticed any change in shade. The drawings were changed 7/20/60.

Returning to Mr. Brimacombe, he also had his local DuPont paint shop match Dark Grey #23854 D, and Light Grey #8234 D. These colors very closely match the author’s retained wet lacquer samples of passenger car paint from Beech Grove (1968).

The “new” color chips are a slight bit lighter. Thus we finally substantiate the unchanged continuity of the shades of the NYC greys from 1938 through the reversal of 1946 and then through the re-arrangements of striping for the 1948 or “Post War” scheme and there after to the end on January 31, 1968.

There then still remains one color to match: “Opex Blue” for the stripes delineating the greys on the “1938 Century.” The only “Blue” found in the NYC paint records is DuPont #3430 DH, which was used for the backgrounds for the NYC System oval medallion below the locomotive numbers on J 3 Hudsons, L 3 and L 4 Mohawks, S 1 and S 2 Niagara’s, on the large medallion on the front of the J 3 Streamliners, and various other.
On PT tenders a condensed arrangement of 1941 Empire State Express tender lettering was used, with the 1939 striping, as shown here on a PT-1 tender, as new, at Beech Grove Shop in May 1943. NYC RR photo, collection of Al Stauf.

places. Here again Mr. Brimacombe's friendly DuPont dealer mixed the color. After a thorough evaluation of this color in combination with the grays, utilizing "daylight" lamps, and comparing the shades with black and white photographs of the 1938 equipment, and with a thorough understanding of the types of film used (monochromatic vs. panchromatic) Mr. Brimacombe, a professional photographer, has concluded that this blue is probably the correct one. From a logic basis, I'm sure Mr. Henry Dreyfuss, the designer, would want a continuity of color from the blue background on the oval on the front of the locomotive through the blue stripes to the blue opalescent glass background on the observation car sign. Thus, I believe the correct "Opex Blue" is a match to DuPont #3430 D H.

Also at the time of the original article, there was some discussion of the actual spacing of the stripes on the revised arrangement shown on PSCM. (Pullman Standard Car Mfg. Co.) Drwg. SK-C-10031, as "no one could find one" or for that matter the "original 1938" arrangement shown on PSCM Co. Drwg. No. SK-9214, even though both were listed in the drawing references.

As this article was being prepared, Charlie Smith, our President, while going through a pile of old drawings found PSCM Co. Drwg. No. SK-C-10031 dated 3-30-39, confirming that the revision was planned for the 1939 car additions, not 1940 as previously stated, and one week later, went to a "book dealer selling some of the late Edwin P. Alexander's things," and found PSCM Co. Drwg. No. SK-C-9214 dated 2-19-38.

From these the drawing shown as Fig. 2 was prepared, showing in detail the spacing which is somewhat confusing on NYC drawings R-51773 and R-51774 published in 1977.

The underframe and trucks on the 1938, 1939, and 1940 built equipment were painted black, except of course that portion of the undernearth equipment protruding below the skirts, which was "lower body color" (light grey).

The "Post War" or "1948" scheme calls for Sherwin Williams #43229 Plymouth Gunmetal (Kem Transport Enamel) on all underbody and trucks. This, however, was changed in 1958 (5/1) to F-1 car cement (same as the roof from the beginning of it all, and the only thing that did not change) on all equipment except the outside facing boxes, etc. and the trucks which were a glossy black enamel.

The steam locomotives, from all published data, (Railway Age, etc.) were light grey outside, with dark grey frame, cylinders, etc. The nose fin was painted aluminum, the headlight case was originally polished aluminum, later painted, the cylinder and valve chest covers were aluminum (metal), brush finished, the drivers painted aluminum, the rods polished steel, and the tender underframe and trucks dark grey—although the underbodies and trucks on the cars were black.

The original tender striping was a match to the cars, and provided a continuous color band of dark grey from behind the cab to the observation car, however, there were no top (eave moulding level) or bottom (of side sheet level) aluminum stripes. The lettering was 12" high, in a block style similar to the 4" used for "US Mail RPO" lettering on that car. Analysis of photographs and drawings indicate the Opex Blue stripes were fitted on the tender side to avoid rivets. No drawing of the lettering or striping has come to light so far.

When the car striping was modified in 1939, the tender striping was redone to match as locomotives were shopped when the PT-1, and later PT-3 and PT-4 tenders were applied, the painting and striping continued in the 1939 scheme, EXCEPT the lettering changed. The 12" height remained, but the letters were changed to those used on the 1941 Empire State Express, but here again the spacing was changed to, oddly enough, a closer spaced letter and word arrangement than that used on the "Empire" stainless clad Hudson tanks. Other than analysis of photographs and tender tank drawings and the Empire State Express lettering drawing (available from the society), no drawing of this arrangement has turned up as yet.

We hope this will firmly establish the continuity of the colors used on this equipment . . . forever . . . or at least until someone else finds a lost drawing or paint chip.

You will notice during this discourse the color described as Grey or Gray. The spelling herein is as found on the reference drawings. Grey is correct, of course, when referring to a "color."

Thanks also go to Mr. C. H. Wilber, retired DuPont railroad representative who covered the NYC at Collinwood, and to DuPont personnel in Wilmington for their assistance.
1938 and 1939 20th Century Limited Striping Arrangements

1) Add 1/4 black edge to all striping shown.
2) Stripes on eave moulding and bottom of stretch not used after 11/2/42.
3) All dimensions in inches except as noted.

Figure 2. This drawing compares the location and size of the striping on the 1938 built "Century", and the 1939 revised arrangement. The drawing shows the stripes without the black edging, except the bottom edge of the bottom stripe, as this affects the location of the stripe by the width of the edging.
20th CENTURY LIMITED PAINTING AND LETTERING DRAWINGS

I 1938 Streamlined Train - as placed in service June 15, 1938.
Pullman-Standard Car Mfg. Co. Key Lot 6508
a) Pullman Cars, Lot 6539, 6540, 6541, 6542, 6546, 6547
   Exterior Painting (and striping), Pullman-Std. SK-9214, 2/19/1938
   Style and Spacing, 7" "Pullman," Pullman-Std. SK-9045, SK-9096
   Style and Application, 5" Car Names, Pullman-Std. SK-9098
   Style and Alphabet, 5" Car Names, Pullman-Std. SK-9048 (3 sheets)

b) New York Central Cars
   1) Dining Cars, NYC 680-685, NYC Lot 2129, Pullman-Std. Lot 6544;
      Ref: Type of Lettering (7" New York Central") Pullman-Std. SK-9096.
   2) Baggage-Mail Cars, NYC 5017-5020, NYC Lot 2130, Pullman-Std. Lot 6545:
      Exterior Lettering and Striping; H. Dreyfuss E-42 2/25/1938
      (Left side), E-36 11/5138 Rev. 2/2/1938 and 2/28/1938 (Right side)
      Ref: Type of Lettering (4" United States Mail Railway Post Office") Pullman Dwg. SK-9048
      Lettering Layout (4" USMRPO) H. Dreyfuss E-42
      5" Numerals: H. Dreyfuss E-33

II 1939 Revised Striping as originally applied to equipment added in 1939 and 1940, and on 1938 built equipment when repainted beginning in 1940. All lettering the same as originally applied in 1938.

a) Pullman Cars, Lot 6565, 6567, 6570, 6571, 6572, 6573 (1939); 6610, 6612, 6616, 6617, 6618 (1940)
   Exterior Painting and Striping, Pullman-Std. Car Mfg. Co. (Color & Design Studio) SK-C-10031 3/30/1939
   Lettering: Same as original application (1938)

b) New York Central Cars.
   1) Dining Cars NYC Lot 2129
      Lettering, Numbering and Striping, Passenger Cars, NYC R-51774, 5/14/1939, Issue B 12/2/1939,
      Issue C 1/12/1940.
      Ref: H. Dreyfuss E-28, Pullman Dwg. 328-D-50 and SK-9854.
   2) Baggage-Mail Cars, NYC Lot 2130:
      Lettering, Numbering and Striping, Passenger Cars, NYC R-51773, 5/14/1939, Issue B 12/2/1939,
      Issue C 1/13/1940
      Ref: H. Dreyfuss E-42, E-36, Pullman Dwg. SK-9854
   3) NYC System Drawings all dated 5/14/1939:
      7" Letters NYC Q-51779 Ref: Pullman SK-9236, (and SK-9096).
      4" Letters NYC X-51778 Ref: Pullman SK-9048
      5" Figures NYC X-51777 Ref: H. Dreyfuss E-33
      2½" Figures NYC T-51776 Ref: Pullman SK-9237
      1½" Figures NYC T-51775
      Note: These letters and figures are NYC copies of those originally applied to this equipment in 1938.

III 1943 Revised Striping: eliminating 1½" wide Aluminum Striping on the roof molding and ¼" Back edging below roof molding, and 1¾" wide Aluminum Striping and ¼" Black edging along lower stretch (bottom of Side Sheet). All lettering the same as originally applied in 1938.

a) Pullman Cars:
   Pullman Company Dwg. SK-C-10031-A, and General Order 3185 dated 2/24/1943

b) New York Central Cars:
   1) Dining Cars, NYC Lot 2129:
   2) Baggage-Mail Cars, NYC Lot 2130:
      Note on both above: Issue D removed the top and bottom stripes and changed colors of remaining stripes and lettering from Aluminum to White color. Issue E changed remaining stripes and lettering back to Aluminum color. See text for analysis.

IV Reversal of Color Scheme: Light Grey through windows, Dark Grey above and below windows, Striping and Lettering as just before:

a) Pullman Cars
   Dwg. No. unknown, First car to receive reversed color scheme at Calumet Shop, "Mahopac Falls", Pullman Co. Plan 4080 B, shipped 11/22/1946
V “1948” 20th Century Limited, as placed in service September 15, 1948 and all new “painted” equipment, and re-painted “lightweight” equipment

a) Pullman Cars, Painting, Striping and Lettering, NYC assigned Lightweight cars:


3) Spacing of Lettering and Words - Car Names - NYC, Pullman Co. Tracing No. CE-B-3498 3/27/1948


b) New York Central Cars

1) All “Century” Diners. Baggage-Mail Cars, 1938, 1939 and 1940 built lightweight Sleeping Cars, and Post War (WWII) lightweight Sleeping cars, dining cars, etc.

NYC Dwg. SK-N-8162 11/6/1952. Also specific drawings for each Lot of cars.

2) NYC System Drawings for Letters and Figures:

- 5” Alphabet, Wide Letters
- 5” Figures (Car Nos.)
- 4” Alphabet
- 4” Alphabet (Car Names)
- 4” Figures (Car Nos. on Cars with Names)
- 2”/4” Figures
- 1” Letters

VI Last Revision - Removing Black edging from stripes, letters and figures

a) Pullman Cars

Painting, striping and Lettering NYC assigned Lightweight cars.

Pullman Co. Tracing M.D-D-4890 Reiss 1, 4/6/1953 removed black edging from striping and lettering.

b) NYC Cars

1) Dining Cars (1938 Equipment NYC Lot 2129)
   Lettering, Numbering and Striping, Pass. Equip. Cars, R-51774, Issue H (Re-traced all revised)
   2/20/1947 through Issue N 7/20/1960

VII Paint Color Reference

a) 1938: Passenger Cars (Pullman-Std. SK-9214 2/19/38)

1) Dark Grey: (“Dark Polychromatic Gunmetal to match DuPont #8592”)?
2) Light Grey: (“Light Polychromatic Gunmetal to match DuPont #8576”)?
3) Aluminum: to match Sherwin Williams #CE 4424
4) Opex Blue Striping color to match Sherwin Williams #6508-N-10
5) Black roof and edging to be Pullman #109

b) 1939: Passenger Cars (Pullman Standard SK-C-10031 3/30/39)

1) Dark Grey: Pullman #C-88-X-27797
2) Light Grey: Pullman #C-88-X-27796
3) Aluminum: as (a)
4) Black roof and edging: as (a)

11/1946: Pullman Cars. First reversal of Grey - Pullman Co. Painters Notebook

1) Dark Grey: Pullman Co. #70-14
2) Light Grey: Pullman Co. #70-15

1948: Passenger Cars and Locomotives.

Locomotives

1) Dark Grey: Duco 254-23854
2) Light Grey: Duco 254-35453
3) Striping and Lettering: Duco White 254-1
4) Black edging —
5) Underframe and Trucks: Black 88-762
6) Roof —

Passenger Cars

Duco 88-23854
Duco 88-8234
Duco Aluminum Grey 95-7581
Duco 95-004
Sherwin Williams 43229 Plymouth Gunmetal
“F-1” Car Cement
f) 5/1/58: Passenger Cars. Note: Locomotives - no change from 1948
   1) Dark Gray: Dulux 83-23854
   2) Light Gray: Dulux 83-8234
   3) Striping and Lettering: Dulux 95-7581* Aluminum Gray
   4) Roof and underbody equipment: “F-1” car cement (except facing side)
   5) Trucks: Glossy Black (and underbody equipment facing side of car)

g) 7/20/60: Passenger Cars. Note: Locomotives - no change from 1948
   1) Dark Gray: Dulux 83-67117 (NYC #4706831-7) and Duco 254-23854 (NYC #4717152-5)
   2) Light Gray: Dulux 83-35453
   3) Striping and Lettering: Dulux 95-7581* Aluminum Gray
   4) Roof and underbody equipment: “F-1” car cement (except facing side)
   5) Trucks: Glossy Black enamel (and underbody equipment facing side of car)

NOTES

*Some revised (1958) drawings show Aluminum Gray as 95-9581. The author believes this to be a draftsman’s error, as most drawings do not have this change.

1) “Dulux” and “Duco” are products of DuPont.

2) The NYC material numbers were noted by the author from the cans from which his retained (wet) samples were obtained at the Beech Grove passenger car paint shop, 3/29/1968.