

I) Duration in general (1 / 1)

A) Being of psychological subjects: recap of previous work

- 1) *Time and Free Will*: Reality of radical / continuous change
  - (a) but we tend to consolidate seemingly discontinuous “states”
  - (b) and then try to reconstitute change from this series of states
  - (c) via idea of unchanging ego (= “thread” on which “beads” [= states] are strung)
- 2) *Matter and Memory*: Duration = time = reality
  - (a) Duration is “the continuous progress of the past which gnaws into the future and which swells as it advances” [*La durée est le progrès continu du passé qui ronge l’avenir et qui gonfle en avançant*].
  - (b) Past
    - (i) is preserved in itself
    - (ii) constitutes our character as condensation of our history
      - (1) We think with only a small part of our past (“known as idea”)
      - (2) But we “desire, will, and act” with our entire past (“felt as tendency”)
  - (c) With durational being, we never repeat states of being
    - (i) “thus our personality shoots, grows, and ripens w/o ceasing”
    - (ii) Each moment is new and unforeseeable
      - (1) To foresee = to project past into future
        - a. Either what has been perceived
        - b. Or merely a new arrangement of already perceived elements
      - (2) But our “states” are unforeseeable moments of an unfolding history
        - a. They are simple (indivisible concentrations of past)
        - b. They cannot have been perceived (bcs include new present)
        - c. Our new states are self-creations; they modify our personalities
          1. What we do depends on who we are
          2. But we are what we do
          3. Thus we are creating ourselves continually
    - (iii) Ethical implications of self-creation
      - (1) Ethical reason bears on singularities produced in durational being
      - (2) Thus we cannot use “geometrical” reason, nor solve others’ problems
  - 3) Recap and transition:
    - (a) “for a conscious being, to exist is to change, to change is to mature, to mature is to go on creating oneself endlessly”
    - (b) Is this a model for “existence in general”?

B) Being of material objects and being of material universe as a whole

- 1) Instead of durational creation and novelty, we have [dead] repetition
- 2) Laplacean hypothesis:
  - (a) prediction of future states
  - (b) “atemporality” of science
  - (c) We could spread out all past / present / future states “like unfurling a fan”

- 3) But WE (as embodied and living) have to wait for natural processes to unfold
  - (a) Thus perceived / scientific objects are abstractions from an enduring whole
  - (b) Scientifically isolated systems are not completely artificial
    - (i) Matter has a tendency to become extended but it never gets there totally
    - (ii) IOW, extending is a tendency; extension is a limit
  - (c) Double sense of “science”
    - (i) Practical science isolates systems by ignoring very slight influences
    - (ii) But it is another form of science that establishes the reality of those influences
- 4) The universe is durational [*L’univers dure*].
  - (a) Duration = invention, creation of forms, “continual elaboration of absolutely new”
  - (b) Two tendencies in the universe
    - (i) Descent toward extended materiality / “unrolling a spring”
    - (ii) Ascent toward interwoven duration / imposes its rhythm on the unrolling
- 5) Perception as utilitarian
  - (a) reification of process
  - (b) and isolation of communication
- C) Being of living bodies
  - 1) Living beings are “subject to same physical and chemical laws” of all matter
  - 2) But unlike the utilitarian and hence relative reifications of perception and science, living beings are naturally “separated and closed off” or individuated
    - (a) Even though this individuation is never fully realized, it exists as tendency
    - (b) However, it is opposed by the tendency to reproduction, so that “its very need of perpetuating itself in time condemns it never to be complete in space”
  - 3) We must beware treating living bodies with categories of material objects
- D) Maturation and aging
  - 1) As durational, living bodies not like material objects, but like universe as a whole
  - 2) NB: there is no universal biological law: there are only directions which life takes
  - 3) “mechanistic instinct of mind” is stronger than reason and immediate experience
    - (a) It denies duration and insists on change are re-arrangement of pre-existing parts
    - (b) Irreversibility of time is an illusion relative to our ignorance
    - (c) Turning back processes is just inability to put things back in place
    - (d) Thus growing old is just gain or loss of certain substances
  - 4) Bergson’s theory of aging
    - (a) Unbroken continuity between embryonic development and organismic changes, even dramatic transformative crises like puberty or menopause
    - (b) So being of living bodies is continual change of form (albeit w/ different rhythms)
    - (c) Changes are accompanied by organic destruction on which mechanism focuses
- E) Different conceptions of time
  - 1) Material (“unorganized”) bodies
    - (a) are determined by immediately preceding state
    - (b) thus its changes can be calculated by differential equations
    - (c) in which time is an independent variable
  - 2) Determination by immediate past state holds for destruction, not creation
  - 3) Because in organic creation / evolution, all the past must be taken into account
- F) Paradox: evolution gives us mechanistic minds which cannot understand evolution
  - 1) Because of this, we ignore the difference between concrete and abstract time

- 2) Abstract time:
  - (a) “immediately preceding” instant is only separated by interval  $dt$ .
  - (b) Thus we are only dealing with present (instantaneous velocity / acceleration)
  - (c) That is, with the limit or extremity of the interval
  - (d) Thus math deals with the Cartesian world which dies and is reborn
- 3) Concrete time:
  - (a) Evolution means that the past persists
  - (b) Duration is a hyphen or connection
  - (c) Thus we enter into the interval itself
- G) Conclusion and forecast:
  - 1) Living being seems to share attributes of consciousness
    - (a) Continuity of change
    - (b) Preservation of past in present
    - (c) Real duration
  - 2) Is it that life itself is invention / unceasing creation?
- II) Mechanism and finalism as means of interpreting “transformism” (23 / 23)
  - A) “Transformism” = evolution
    - 1) = descent with modification from common ancestor
    - 2) = positing chronological succession of species for logical affiliation of forms
    - 3) Idea of “life in general” no longer an abstraction
      - (a) Following up on Weismann, we see a “continuity of genetic energy”
        - (i) Not a continuity of germ-plasm (a material continuity)
        - (ii) But energetic continuity giving impulsion to embryonic life
          - (1) Providing “continuous progress indefinitely pursued”
          - (2) On which “each organism rides during its short interval of time”
      - (b) In this way “organic evolution resembles the evolution of a cress”
        - (i) = creation of unforeseeable novelty
        - (ii) Although we have retrospective explanation in terms of conditions, i.e., abstracted “elements”
  - B) Our intellect rebels against this idea of creative novelty
    - 1) Intellect always goes for resemblance and hence repetition (i.e., no duration)
    - 2) Intellect promotes anti-vitalist critique
    - 3) Bergson replies that he accepts “fundamental identity” of organized and inert matter
      - (a) “life is a kind of mechanism” (but this is the “mechanism of the real whole”)
      - (b) Our abstracted systems are not parts, but are only partial views of the whole
  - C) A completed biology
    - 1) Integration and differentiation: vitality is tangent to physical and chemical forces
    - 2) Comparison of ancient and modern geometry: static views vs study of transformation
    - 3) Thus a modern biology would like going from function to its derivative
      - (a) It would study inner vital movement as transformation or indivisible motion
      - (b) Of which physics and chemistry would be changes of position of elements
    - 4) IOW, biology would study equation of continuous curve, while physics and chemistry would study the tangents yielding instantaneous velocity or acceleration
  - D) Comments on contemporary experiments: reductionists vs emergentists
    - 1) B here mentions some “emergentist” experiments allegedly generating organic phenomena from inorganic elements

- 2) Also the distinction of constructive and destructive processes
  - 3) And the “mind in life” thesis in re amoebas
  - 4) And finally that those looking to function are reductionists while those looking at minute structure are “emergentists”
- E) But B’s concern is not emergence, but duration vs mechanism (which is reductionist)
- 1) Regarding duration, evolution of life as a whole is the key
  - 2) Here life is a “single indivisible history”
- F) Common errors of mechanism and finalism
- 1) They both agree that “all is given”: they deny duration
    - (a) Mechanism relies on Laplacean denial of concrete time
    - (b) Finalism is more flexible; it is “essentially psychological”
      - (i) B’s position is that of “external finalism”
      - (ii) B is not a vitalist:
        - (1) in nature, neither pure internal finality nor absolutely distinct individuality
        - (2) Life is a whole, and external finalism coordinates
          - a. not only parts w/ organism
          - b. but also each organism with life as a whole
  - 2) They both extend too far pragmatic concepts of the intellect
    - (a) Pragmatic concepts:
      - (i) Mechanism looks to efficient causality
      - (ii) Finalism looks to projected goal, or plan of action
    - (b) Both emphasize [dead] repetition and reject creative novelty and duration
    - (c) They are both “external views” of our conduct
- G) Intuition and the limitations of intellect
- 1) “We don’t think real time, but we live it, bcs life transcends intellect”
  - 2) Intellect is only nucleus; we must remember intuitive fringe out of which it condenses
  - 3) By means of this fringe, we see that reality is ceaseless creation of novelty
  - 4) We must develop a philosophy of new concepts to match changing reality
- H) The philosophy of life
- 1) Must transcend both mechanism and finalism, though closer to latter
  - 2) Life is a whole, but full of discord:
    - (a) Each species retains part of élan vital that allows adaptation
    - (b) This allows for conflict with other species
  - 3) Thus commonality is from original impetus, not from some alleged common goal
    - (a) Life endures
    - (b) It creates its path in traveling over it
  - 4) The problem with finalism is that it springs from intellect rather than intuition
- III) Search for a criterion – B considers various evolutionary schools (53 / 53)
- A) Bergson’s thesis: evolution proceeds by dissociation, by ever-ramifying divergent lines
- 1) This means something of common origin must be retained on divergent lines
  - 2) For example, the presence of identical organs on different lines
    - (a) Mechanism: series of accidents preserved via advantages conferred on organism
    - (b) B’s reply: highly unlikely to result in same organ on different lines
    - (c) Adaptationist response to B: same structure from same general conditions
      - (i) Direct: Env causes physio-chemical changes (Env as source of variations)
      - (ii) Indirect: Env only eliminates unfavorable variations (w/ accidents as source)

- (d) B's general reply to adaptationism:
  - (i) Indirect / Darwinian thesis (pruning of accidental variations) cannot account for same organ on different lines, bcs of odds against same series of accidents on different lines
  - (ii) Direct thesis (similar effects via similar causes) rests on equivocation
    - (1) The equivocation:
      - a. Mechanist adaptation = mechanical adjustment: ready-made form
      - b. Biological adaptation = replying, not repeating: no pre-existing form - -- but this implies an intelligent cause ("internal finalism")
    - (2) The consequence:
      - a. Biology tends to take the second sense in particular cases
      - b. But the first in talking about adaptation "in general"
- B) Choice of an example (similar structure on different lines) to defeat oscillation btw mechanism and finalism (59 / 59)
  - 1) Plants and animals: parallel sexual means of reproduction / different lines
  - 2) Simpler examples: sense organs
    - (a) Instead of comparing organs and functions, we should compare different organs
    - (b) E.g., eye of vertebrate and eye of mollusk: what accounts for similar structure?
- C) Indirect adaptation via accidental variations (63 / 62)
  - 1) Opposition of two schools:
    - (a) Darwin: speciation via accumulation of insensible variations
    - (b) De Vries: speciation via sudden mutation of a number of forms
  - 2) B's reply: neither school can account for similar organs on different lines
    - (a) Darwinian small variations must deal with threshold of coordinated function
      - (i) If the variation is too small to disrupt function, it won't help it either, unless there is coordination with other variations
      - (ii) But it can't be retained either w/o an appreciable effect on the function (and on overall fitness of organism)
    - (b) Sudden and large variations
      - (i) Helps the case in two ways
        - (1) Lessen the chances against similarity across different lines (smaller number of events that have to be repeated)
        - (2) Variations have to be large enough to confer advantage on organism ("retention" problem)
      - (ii) But hurts it badly with coordination problem: Any big change will make vision impossible w/o coordinated changes in other parts of the organ
      - (iii) Adaptationists will reply with the "law of correlation":
        - (1) changes are not localized, but effect many parts of the organism at once
        - (2) But this is another equivocation; it confuses
          - a. Solidarity of changes (one change effects other parts, but this effect can be bad)
          - b. Complementarity of changes (the changes have to be coordinated so as to improve function)
      - (iv) Correlation is "almost legitimate" in botany, but not in zoology
    - (c) Summary: with both schools we need a "good genius" to watch over changes
      - (i) To assure continuity of direction of [small] successive variations (Darwin)

- (ii) To assure convergence of [large] simultaneous changes (De Vries)
- D) Direct adaptation via environmental causes (69 / 69)
  - 1) Again, this relies on the equivocation of “adaptation” (passive imprint vs active reply)
  - 2) Nature helps this confusion
    - (a) Begins with passive imprint (“life proceeds by insinuation”)
    - (b) Later builds up means for an active reply
  - 3) Three sense of term “cause” must be distinguished
    - (a) Impelling (billiard balls hitting each other) (only here does cause “explain” effect)
    - (b) Releasing (spark exploding powder)
    - (c) Unwinding (relaxing of spring turns the phonograph and produces the melody)
  - 4) Eimer’s results are not really impulsions and hence not really causal explanations
- E) Shift to ontogeny (development) (75 / 74):
  - 1) Same results from different embryogenic processes;
  - 2) This seems to require an “inner directing principle” to account for converging effects
- F) Neo-Lamarckism (77 / 76)
  - 1) Lamarck held that organisms could produce variations by use or disuse of organs and could pass on those variations (“inheritance of acquired characteristics”)
  - 2) Some biologists hold that variation arises from “very effort of living being to adapt itself to the circumstances of its existence”
    - (a) Mechanically elicited by Env.
    - (b) Or implying “cness and will”
  - 3) Weismann’s germ-plasm theory seems to have defeated Lamarckism
    - (a) But what if it were only a “natural disposition” transmitted by germ-plasm, not an acquired habit?
    - (b) Some things can affect both soma and germ-plasm, making it seem as if soma acted on germ-plasm
  - 4) B proposes to distinguish heritability of deviation and that of character and sees the former as much more common than the latter, if it exists at all
  - 5) Even then, neo-Lamarckism is no more able than the other schools to explain evolution of eye on different lines
- G) Summary (85 / 84): each of these scientific views is partial, but philosophy must deal with the whole reality, w/o scientific precision bcs w/o application to utility
  - 1) Neo-Darwinians (indirect adaptation):
    - (a) B agrees in seeing source of variation in differences in germ, not diff experiences
    - (b) B disagrees in seeing germ variations as accidental instead of result of an “impulsion that passes from germ to germ across the individuals”
    - (c) mutationists (De Vries) see a non-accidental “tendency to change” in entire species
  - 2) Direct adaptationists (Eimer):
    - (a) B agrees that variations across generations take definite directions (but no predetermination of evolution as a whole: creative novelty is key)
    - (b) B disagrees that physical and chemical changes are enough to explain same result on different lines
  - 3) Neo-Lamarckians
    - (a) B agrees that evolution has a “psychological nature”
    - (b) B disagrees that an individual consciousness is at work; must be a “deeper effort”

IV) The *élan vital* (88 / 87)

- A) Original impetus [*élan*] as fundamental cause of accumulating variations and speciation
- B) Example of the eye developing on different lines of evolution
  - 1) Mechanism and finalism presuppose pre-formed elements to be assembled
  - 2) Bergson holds that life proceeds by “dissociation and division”
  - 3) Let’s consider the complexity of the mechanism and the simplicity of the function
    - (a) Simplicity belongs to object
    - (b) Complexity belongs to our multiple views of the object
      - (i) Scientific perception operates by principle of utilitarian reification
      - (ii) = mechanistic identification of “parts” which are complexly re-assembled
  - 4) Consider the difference between indivisible movement and space traversed
    - (a) Mechanism sees only positions / finalism also takes their order into account
    - (b) But both miss the movement
      - (i) Which is both more than the positions and their order
      - (ii) And less than them, for their order presupposes an intelligent idea
  - 5) Same with the relation of eye to vision
    - (a) Vision is more than coordination of parts (mechanism / finalism fall short)
    - (b) But less than it as well; vision is not result of a plan
    - (c) “nature has had no more trouble in making an eye than I have in lifting my hand”
      - (i) Natural creation is a simple act
      - (ii) “parts” are like the points of traversed space
- C) Manufacture vs organization (=organic creation)
  - 1) Superficial differences:
    - (a) Manufacture is peculiar to man; it consists in arranging parts for a common action
    - (b) Organization is centrifugal, it is “explosive”
  - 2) Profound differences:
    - (a) Manufactured machines reflect assemblage (legitimate procedure of science)
      - (i) Whole of result represents whole of work
      - (ii) Each part of whole is represented by a part of the work
    - (b) Organized “machines”
      - (i) Whole of result does represent the whole of the work
      - (ii) BUT the parts of the machine do not represent parts of the work
        - (1) organized materiality due to obstacles overcome, not to means employed
        - (2) so moving hand analogy needs to take resistance into account, as in iron fillings image
          - a. mechanists and finalist will have their interpretations
          - b. but there was only one indivisible act, of which the interpretations of the mechanists and finalists are only “negative” expressions
        - (3) so vision is like moving hand, and fillings are like visual apparatus
- D) Original impetus
  - 1) “the form of the organ only expresses the degree to which the exercise of the function has been obtained”
  - 2) this sounds like finalism, but it is not; it is due to original impetus, not to a goal
  - 3) “life is ... a tendency to act on inert matter”
    - (a) Direction of action is not predetermined, but is contingent; it implies “choice”
    - (b) Thus possibilities of action must be marked out in advance

- (c) This is exactly that visual perception does
- (d) Thus vision is found in many different kinds of animals with such a need