

## **Chapter 1. Under Pressure: Cousteau The Engineer**

### **Introduction**

The following chapter is an account of Cousteau in the persona of the engineer, that is to say it concerns itself with the specific, the measurable and the evidential. I will briefly contextualise the history of diving up to the point of Cousteau, and will then look at his contribution to diving and the consequences of this innovation. I will then examine firstly how the diver/engineer in his 'work' can be thought of as an agent of Modernity<sup>1</sup>. Secondly I will introduce the notion of the 'New Diver' and will then examine the way this figure is deployed to represent a break with the past in the way Kristin Ross (1995) deploys the 'jeune cadre' (young executive), and the way this break is presented by Cousteau in his early books and films.

I am particularly interested in Wolfgang Schivelbusch's contention that the railroad, as a new technology in the early years of the industrial revolution, occasioned a re-alignment of the human perceptual apparatus, with its novel experience 'filtered through the machine ensemble' (1977, 23) and hence a new 'way of seeing'. Having established the technological step-change in diving brought about by Cousteau, I will explore the point-of-view of the New Diver and suggest ways in which this may be considered in similar terms as occasioning a new 'way of seeing' with a particular neurology.

### **The Bends: A Short Prehistory of Diving**

According to Ecott (2002), the history of diving is bound up with efforts to understand the effect of pressure. The human body, being mostly comprised of water, is immune to the effects of pressure. However this is not the case for any part of the body that contains air, that is to say the lungs, and the bloodstream. When you dive, for every ten metres you travel in depth underwater, you add the pressure of a whole atmosphere. That is to say, at 10 metres, you are experiencing 2 atmospheres (or 'Bar'), at 50m you are experiencing 6 atmospheres. This means that the deeper you go, the more dense the air you are breathing. More crucially, as you surface, this same air expands within your bloodstream. If this is not done very slowly, allowing air (specifically, nitrogen) to escape, this will bring on 'the bends', an often-fatal condition where air expands into bubbles within the body and brain.

Diving in Europe was practiced for centuries by the Greeks, who dropped to the bottom of the sea aided by the weight of a heavy stone. Hundreds of them died, and thousands were crippled by the bends. The sight of an afflicted diver was apparently so common that folk dances were created in which the agony of the bends was mimicked. Divers were also often deaf - their eardrums perforated by air, which expanded as they returned to the surface.

The bends has been described as 'the first modern disease' (Ecott, 2002, 84) - a direct result or side effect of technology developed during the Industrial Revolution. It was experienced by divers, engineers and tunnel workers, who spent days in compressed air environments. In those days it was known as 'caisson disease' - observed in workers exposed to increased air pressure during the construction of bridges, tunnels and deep foundations. Caissons were sealed metal chambers lowered into place then pumped full of compressed air to keep them dry. The condition reached epidemic proportions among US bridge builders working up to 100 feet below - notably on the Brooklyn Bridge and the Hudson River tunnel, which really spurred interest in the disease. In the early part of the twentieth century, the motor

industry drove the demand for natural sponges, leading to the establishment of a community of Greek divers in Florida. Immediately prior to the period in which Cousteau began to experiment with diving, most underwater exploration was military – mining, preparation for landings etc. The conditions which brought on ‘the bends’ were understood, but the exact physiology remained a mystery.

Cousteau’s innovation took the form of borrowing technology from the motor industry to develop the demand valve, a simple two-stage device that allows compressed air to return to breathable proportions, then to be consumed as and when divers require it (see Fig. 1).



Fig. 1



Fig. 2

Although it had been possible to breathe underwater in the past by means of an airline fed down to a helmet, this had in practice limited divers to very slow movement on the sea-bed only, and at limited depths. Helmet-divers (see Fig. 2) were reliant on a constant supply of air and on people and machinery on a nearby boat to supply it. Though not in itself a technological leap in the same league as the invention of the petrol engine, in *application* the step-change was like moving from the horse-drawn canal boat to the modern automobile, or from two cans tied together with string straight to the mobile phone. This is to say that the technology removed both specificity of location and the reliance on an external agent. Diving became henceforth a self-contained activity and could be practiced anywhere, in any ocean.

This very short history establishes a step change analogous to the railroad, but much later. It also puts in place core notions such as ‘pressure’ and a basic sense of the physical constraints of the activity at the time of Cousteau’s invention. Like the railroad, this technology suddenly opened up vast tracts of space for exploration and exploitation. And again, as with the railroad (e.g. the idea that man could not travel above certain speeds) there were new problems to be overcome, in this case the understanding of the effect of pressure on the human body, to which I now turn.

## The Diver as an Instrument of Modernity

*‘The Enlightenment has always aimed at liberating men from fear and establishing their sovereignty... For the enlightenment, whatever does not conform to the rule of computation and utility is suspect’*

Adorno & Horkheimer: Dialectic of Enlightenment (1972, 3)

*'A generation that had gone to school on a horse-drawn street-car now stood under the open sky in a countryside in which nothing remained unchanged but the clouds, and beneath these clouds, in a field of force of destructive torrents and explosions was the tiny, fragile human body'*

Walter Benjamin, 'The Storyteller' (Illuminations: 1973, 84)

Both Gunning and Singer (1995) explore the critical transformations of modernity, namely the reorganisation of urban space due to the growth of capitalism and the advances of technology, and conclude these transformations entail a new experience of the human body and of perception, shaped by travelling at new rates of speed and inviting new dangers.

In the first pages of his 1953 book, Cousteau has invented the aqualung, but does not yet have the knowledge of the consequences of its usage, that is to say a full understanding of diving physiology. As observed above, the pressure on the air contained within the diving body can have extreme and potentially lethal effects, something Cousteau begins to chart. 'My human lungs had a new role to play – that of a sensitive ballasting system' he says (1953, 15) 'Human lungs are balloons in a flexible cage... rib cages are reduced to one-third normal size' by the effects of external pressure. (1953, 25). By contrast, 'Human tissue is almost incompressible. We have swum without armour in pressures that have cracked submarine hulls' (1953, 192). Air trapped in eardrums, he notes, can cause them to burst as it expands, and even air trapped in loose fillings can cause indescribable pain as the diver returns to the surface.

In his experimentations, Cousteau has a series of near misses. He experiments with diving using pure compressed oxygen and this causes a near-fatal reaction: 'My spine was bent backward like a bow'. (1953, 27). Elsewhere he describes the fate that befalls a traditional helmet diver if his non-return valve (which regulates air-flow) does not hold: 'by the suction of the air pipe his flesh is stripped away in rags which stream up the pipe, leaving a skeleton in a rubber shroud to be raised to the tender'. (1953, 196). To test the conditions that divers are able to withstand, a series of ever-deeper dives are carried out (until eventually, there is a fatality). The physiological effects of depth are substantial. 'Everything in the world was thick. My fingers were sausages. My tongue was a tennis ball... The air was syrup'. Cousteau even goes so far as to suggest his brain has been 'bisected'. (1953, 128-9). Heat, it emerges, transfers quickly from the body into the surrounding water, such that a diver may need to consume up to 10,000 calories per day. 'Exposed to cold the body makes a ruthless strategic retreat' (1953, 23), he says, 'Diving burns more calories than working in a steel mill'. (1953, 32).

Much of Cousteau's early 'work' involves making the water safe after the war, principally clearing mines. This leads him to experiment with the shock resistance of a naked man (1953, 66/67) by exploding one-pound TNT charges progressively nearer to himself underwater. He films a torpedo leaving a submarine, a submarine escape exercise, or a trawl net dragging (and destroying) the sea-bed. Looking out into contemporary news accounts, it is clear that technology can give (opening of the first atomic power station (Le Monde, 28 Jan), mass marketing of spectacles and in particular hearing devices (e.g. 7 Jan)), and technology can take away: in a four-week period, Le Monde gives accounts of regular technological disasters, from accounts of crashes of the Douglas A-3 bomber (2 Jan) to the sinking of the Champollion (7 Jan) and the Princess Victoria (3 Feb).

In all of Cousteau's accounts we have a combination of the language of dissection and scientific knowability, coupled with the most vivid elaborations of the body experiencing forces as yet

unencountered. Although he is talking about his own lungs reducing to a third of their own size, it is in a depersonalised manner, expressed in terms of ordinary household objects, using the language that of an elementary physics lesson, e.g. he talks of his 'compliance with Archimedes' principle'. (1953, 14). What seems most interesting here is the oscillation between the personal, subjective realm, and the impersonal, objective realm. Cousteau is at once the pioneer, experimenting with his own body and describing it in the first person, and yet he seems strangely detached from the experience, as if to lend a sense of scientific validity. In his analysis of the properties and processes of the body, there is a general concern with measurability and precision - as if the diver has become an instrument of Modernity itself. The human body becomes a site upon which hitherto unknown laws of nature are inscribed, and then overcome. There is also a sense in which, in this context, each natural law exerts itself on a separate, disembodied part of the human whole. One even has the impression that in this environment, human beings are little more than pieces of flesh, or 'only so much meat'.

In these early accounts, Cousteau's primary endeavour appears to be to paint the bodily peril of diving. He is drawing on a clear set of conventions, as elaborated by Singer (1995), namely the grisly sensationalism of the tabloids. It was the same with the railroad, which according to Schivelbusch was never free of 'some note of menace, some undercurrent of fear'. (1977, Xiii). The heroism of the diver lies initially in overcoming the perils of pressure.

## The 'New Diver'.

*'And so beyond the engineer whose knowledge increases and whose machines perfect themselves and multiply, a manner of looking at things is forming, and soon a whole way of reasoning that marks our era'.*

France Louis Closon, quoted in Kristin Ross: *Fast Cars, Clean Bodies* (1995, 3)

*'The pilot hero was made unique by a whole mythology of speed as an experience, of space devoured, of intoxicating motion; the jet man, on the other hand, is... motionless (at 2000 km per hour... no impression of speed at all).*

*Mythically, the jet man is defined less by his courage than by his weight, his diet and his habits (temperance, frugality, continence). His racial apartness can be read in his morphology: the anti-G suit of inflatable nylon, the shiny helmet, introduces the jet man into a novel type of skin in which 'even his mother would not know him'.*

*'A true racial conversion'... 'Everything happens as if there had been a sudden mutation between the earlier creatures of propeller-mankind and the later ones of jet-mankind.' The traditional hero flew 'without foregoing his humanity'. The role abandons all that is individualistic and romantic. He is part of a celestial race.*

Roland Barthes: *The Jet Man: Mythologies* (1957, 71)

We now move from the physical experience of diving to the *technological promise* of diving and the point-of-view occasioned by diving. Cousteau's early exploration quickly gives way to the representation of a world enabled and enlivened by the promises of technology. From radio communication on the boat, to echolocation, or later the setting-up of a prototype city beneath the sea, we have a sense that we are now looking at a new way of being in a particular environment.

Though not explicitly referred to in these terms, Cousteau traces and sets up a *genealogy of diving* and then a figure that I will call the 'New Diver'. Throughout the early books and films, the New Diver is portrayed in relation to the helmet diver, who with his feet and head encased in lead, is seen struggling just to walk a few yards, '(his) head imprisoned in copper... a cripple in an alien land'. (1953, 17).

In a scene in the first film (1956), the New Diver swims down to the old, and darts around him, like Odysseus playing tricks on the Cyclops, as elaborated by Adorno and Horkheimer (1944, 64), symbolising the triumph of modern man over the primitive. When the two races meet – face to face, mask to mask – they might as well be from different planets. Cousteau talks of Greek divers unable to walk on land, but recovering agility once again underwater, in the world of pressure. Each pressure stroke (or attack of the bends), he says, 'condemned them to the sea'. (1953, 48) With better understanding of the effects of pressure, a period spent in a decompression tank can restore 'bent and agonized men' to full health (1953, 79). Cousteau seems to have in mind the conventions of medieval painting where the ordinary man was painted bent and supplicant before God and power, or possibly Darwin's schematic for evolution, with progressively hunched Neanderthals finally replaced by an upstanding white male. The implications are clear – the new way, practiced by the New Diver is like the Renaissance to the Dark Ages: through knowledge we have raised ourselves over our superstitions. Like Odysseus, he has also overcome the laws of nature: 'Delivered from gravity and buoyancy, I flew around in space' he says. (1953, 17). Here the New Diver is transcendent, he can fly, and he is privileged to perceive some new, though unelaborated vision of the world: 'Sometimes we are lucky enough to know that our lives have been changed, to discard the old, embrace the new, and run headlong down an immutable course. It happened to me on that summer's day, when my eyes were opened on the sea'. (1953, 19)

Returning to the film of *Le Monde du Silence* (1956), there are a number of illuminating scenes and set pieces. Whilst the movie is about diving, much time is spent portraying a new technological environment, characterised by rational organisation. The speed of boats on the surface of the water is dwelt upon, indeed, for a movie supposedly about the undersea world, a large proportion of it is spent on the surface. We see Cousteau's boat, the *Calypso*, speeding off, well, where? We are never told, and it doesn't really matter, so long as the boat is moving. These scenes have more in common with the codes of car advertising than they do with scientific exploration: the car, always (even now) visible alone and on an open road, appropriating the American myth of technological sophistication and wild, open spaces, Cousteau is quick to paint a seemingly endless vista that can be inscribed with 'speed'. A second scene is also instructive: Cousteau and his team spend time investigating the possibilities of the DPV (diver propulsion vehicle, like a small, motorised, propeller-driven torpedo). The scene involves a series of flights and passes in 'formation', somewhere between the *Red Arrows* and a *Busby Berkeley* movie. The odd *Bond Movie* notwithstanding, the practical use of such vehicles has never really been established, and the scene seems again somewhat odd in so far as what it demonstrates above all is the sheer ecstasy of speed. The team are exalting in speed in its own right, in the pure pleasure of what is now possible: speed for speed's sake, or ultimately speed as play. On land, in parallel, as Ross (1995) has documented, France throws away its bicycles and embraces the car. The Diver gets fins, the car tailfins, the diver's mask is like a mini windscreen, and they both carry their fuel (air & petrol) around with them.

By the time the second movie (*Le Monde Sans Soleil*) appears in 1963, the practices of the New Diver have been codified, that is to say the team has acquire a consistent uniform and a name: ‘Aquanauts’. Ten years after the initial invention of the demand-valve, Cousteau is describing a new, technologically enabled *race* – free to move around, not tied to locality, not prisoners of environmental conditions. (This merits greater consideration in Chapter two). Like Jason’s Argonauts they have set off in search of a heroic future with its own golden fleece.

Small wonder that the visual representations of these divers are reminiscent of Superman – (see Fig. 3). They seem to fly, effortlessly, with big bunches of red coral appearing to issue from their hands like flames. Like Barthes’ Jet Man, they are the embodiment of the engineer as hero, nearer to robot than man.

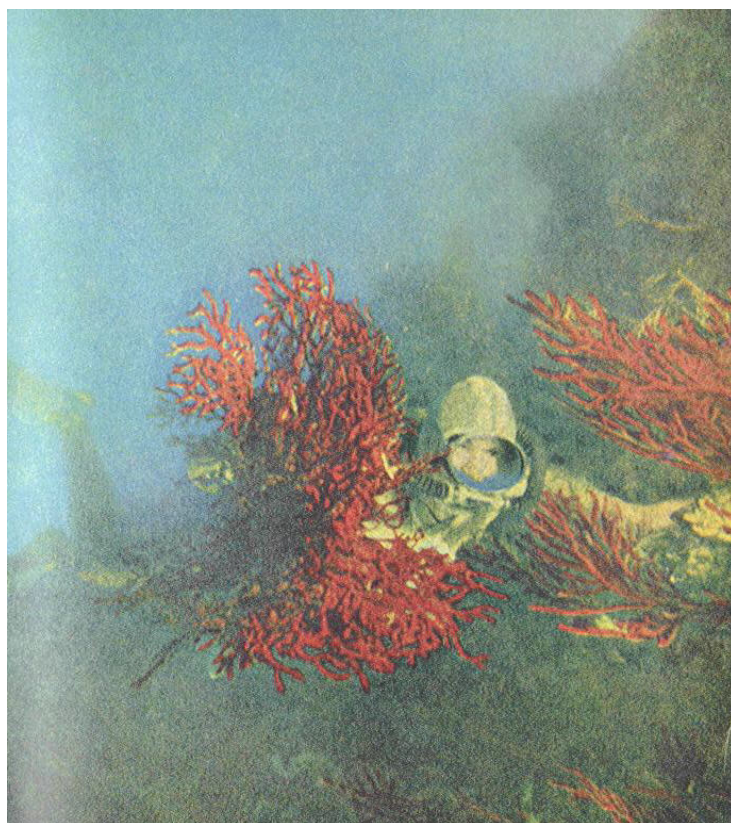


Fig.3

Like the Jet Man, Cousteau’s New Diver has a grey ‘suit’. As mentioned above, Cousteau spends a long time establishing that an immense calorific intake is required to keep a man underwater all day (due to the fact that heat escapes easily from the body into water). Calories are like jet fuel: a measurable, quantifiable representation of the use-value of food. Food becomes energy, enabling the new race to get on with its work (whatever that is, again a question to which I will return) as opposed to having any particular taste, say, or cultural meaning.

If the Jet Man demonstrates ‘no impression of speed’, the New Diver demonstrates ‘no impression of weight’. The New Diver is impassive – with only his eyes visible, his facial expressions cannot be read. The illustration above, one of a number published in *National Geographic* in 1953, has been coloured to give the face an unusual level of prominence. The diver’s face would more normally not be visible at all

(see fig. 4), in fact the mask would reflect back at you, making the face a completely blank space. This depersonalisation makes New Divers ultimately interchangeable – a commodity - once underwater it requires Cousteau’s commentary to tell us who is who. Like Ross’s *Jeune Cadre*, a new class of manager and cheerleader for the process of modernisation (1995, 7) the New Diver is defined by his technological and social role, not by his individual identity.



Fig.4

The comparison with the jet man is in many ways more instructive than, say, the spaceman. In a few years’ time Armstrong will bound across the surface of the moon in zero gravity, looking very much like the helmet diver. What seems more interesting in the case of the jet man and the diver is that they represent new paradigms. The jet-man is half man, half machine as denoted by his silver outfit and the disappearance of his human identity. The new diver is a different kind of paradigm, that is to say a synthesis of man and fish determined by the environment, with technology as its mediator. Barthes raises the idea of a mutation, and this is explicit in Cousteau: ‘From this day forward,’ he says, ‘we would swim across miles of country no man had known, free and level, with our flesh feeling what the fish scales know’ (1953, 17). He calls his divers ‘Menfish’ (1953, 13). At about the same point, the English coin the term ‘frog-men’. The term ‘Aquanaut’ came later and has specific (colonial) overtones which, again, I will discuss in chapter two.

As France makes a rapid transition into being a mechanised, car-based urban culture, as the world halves in size thanks to the jet engine (something I will elaborate further in chapter two), the New Diver appears, overnight, in the collective consciousness, further animating an already-present technological *imaginaire*<sup>2</sup>

## The Subjective Experience of Diving: A New Way of Looking?

*'Film... manages to assure us of an immense and unexpected field of action...a sense impression that has been changed by technology'.*

Walter Benjamin: *The Work of Art in the Age of Mechanical Reproduction* (1992, 229)

*'Schivelbusch... writes to recover the subjective experience of the railway journey at the very moment of its newness'...*

Alan Trachtenberg, Foreword to Wolfgang Schivelbusch: *The Railway Journey* (1986, xiv)

Throughout the film of *Le Monde Du Silence* and the book of the same name, how does Cousteau describe the subjective experience of this new human activity? He may not be intentionally setting out to record an altered sense impression, but we do see him struggling to express it, trying to find a language with which to record it, *at the very moment of its newness*. As I explore this, it is important to distinguish between the subjective experience of diving and the filming of it. The following five basic observations can be made: I will speculate as to what they mean after I have made them.

*1. Diving is disorientating. It brings with it an experience of ones own spatiality changed by the refraction of light and the absorption of light at depth.*

The effect of refraction through the mask brings objects 'one fourth nearer than their actual distance' (1953, 209). Hence, there is a new spatiality which man must adjust to – sight stops being reliable. Worse, it plays tricks on you. If, driving on land, it is difficult enough to adjust to anticipating traffic two hundred yards ahead, try reaching for something with an arm that no longer obeys the instructions your brain is giving it. 'On my first dive I reached for objects, saw my hand fall short, and was dismayed by my shrunken flipper of an arm. It takes practice to correct distance and size automatically'. (1953, 209). When the team start filming underwater, they correct for distance and are puzzled when their films come out blurred. By estimating focal length on the basis of what it *seemed to be*, the picture sharpens – the camera is incapable of making the 'mental correction' that humans must make. Further, with our eyesight being accustomed to being on land, we are used to a consistent amount of light being available. In the sea, the deeper one dives, the less light there is. Colour diminishes and leaves everything a uniform bluey-grey colour. 'Sunlight penetrating the sea loses intensity as absorption transforms its energy to heat. Light is further diffused by particles...even by the water molecule itself...scattering the light supply before it can reach the great depths. The voids are black, like interplanetary space'. (1953, 210). On the surface, we can rely on a consistent level of light almost anywhere. This rule is suspended underwater.

*2. There is a re-orientation of the order of the senses, a re-organisation of sensory experience.*

Schivelbusch (1977, 55) recounts how in the railway journey, smells & sounds 'disappeared'. Buck Morss (1993, 125) recounts how in the modern world our primary senses have been repressed in favour of the visual and the auditory. In this phase of the development of diving, smell and taste largely disappear – there may be a hint of metallic taste of air and the plastic of the mouthpiece, but you basically breathe in a standardised, purified air devoid of ambient tastes or smells. Language, such an

important part of the world above water, is impossible. Divers quickly had to evolve a basic sign language, so limited that it can only really refer to basic safety protocols, transferring communication to the visual. With the mask in the way, it is impossible to read the expression on the face of a diver even a few inches away.

As well as the suspension of normal sensory clues (the movement of the sun etc) divers are forced to navigate in three dimensions and use an entirely different system to orientate themselves. Depth must be kept steady, and it is practically impossible to tell how deep you are without some form of technological help – a depth gauge, or dive computer.

Perhaps the most surprising thing underwater is that should you be unlucky enough to cut yourself, it may take some time to realise, as *blood runs green* below just a few feet of depth (1953, 213). This is symbolic of the re-ordering of the senses, and a phenomenon to which Cousteau devotes a chapter. The normal sensory clues – the alarming red colour, the way it drips and coagulates, the smell and even the taste when you lick a wound – are all suspended. Cousteau's team even take colour charts below to witness the effect of depth on colour. At fifteen feet, orange, for example 'disappears'.

Sound, on the other hand comes at you from all around – one of the most disorientating things that can happen to a diver is for a boat to pass nearby above you. There is no way to tell where it is coming from: if a car approaches you on land, you know broadly from which direction it is travelling even if you cannot see it – in the water sound seems to come from all around, a 'panoramic' or even 'surround' sound. One also becomes conscious of one's own breathing.

Most diving is done without touching anything – the chemicals in human skin, for example, will kill coral. This, coupled with the removal of the experience of weight and the fact that no one part of the body is privileged in its contact with the elements (as, say, feet, hands or mouth i.e. water is in contact with the whole body) has a neutralising effect on touch. One is neither 'In touch' with the undersea world, but at the same time completely in touch, or enveloped by it: an odd recasting of the world.

Finally, underwater, divers seek to achieve a state of near weightlessness by balancing the buoyancy in their suit and lungs with lead weights carried round their waist. Cousteau observes that he and his gear can weigh two hundred and sixty five pounds on land, and a single pound in the water. 'Weight', he observes, 'has been suppressed'. (1953, 194).

### *3. Diving involves a change in the way we move through space: a new-and-different sense of moving about in space (which is inherently filmic).*

Benjamin showed that the ability of film to allow us to see things in close-up, sped up or slowed down changes the way we look at the world (1992, 229-230). According to Charney & Schwartz, modernity can be best understood as being inherently cinematic, which is to say that cinema emerged from practices associated with modernity. (1995, 2). 'Modern attention' they say, 'was vision in motion'. (1995, 6). Automobiles, by the same token, can be thought of as a 'visual framing device on wheels', according to Sara Danius (2002, 5).

All movement in diving endeavours to conserve energy, and to conserve air. Where possible, divers drift with currents rather than swim against them. Movement is therefore very much part of the environmental conditions in which it takes place. It is 'organically embedded'.

Underwater, the use of the camera is enhanced by a new form of mobility. Water is supportive, and filming underwater is relatively easy. The camera's movement is slow, organic, a field of vision impossible out of water. 'The embrace of water allows a range of movement that could only be attained in a studio by the use of cranes and other complex equipment' says Cousteau (1953, 215). Diving creates a moving, subjective viewpoint, framed into a rectangle by the mask, analogous to film.

#### 4. *The Experience of Time Changes*

Time, also, becomes subjective. Often you completely lose any sense of how long you have been underwater. The return to the surface brings with it a whole host of measurements which are retroactively attributed to the dive – how long you have dived, at what depth etc. On the surface the Engineer's experience is of the measurability and standardisation of time, but below, the subjective experience of time takes over.

Deakin says that swimming is like experiencing a world in which survival, as opposed to ambition or desire, is the dominant aim. You are literally immersed in nature, and '*your sense of the present is overwhelming*'. (2000, 4) Kern speaks of evidence of a dilation of the present during falls in mountain climbing accidents, and of the expansion of the lived present among psychotics (1983, 82). Although diving is a temporary *mode*, it appears to exist somewhere between the two, neither a permanent state nor quite something brought on by an extraordinary event.

(I will return to the subject of experienced time in Chapter 3).

#### 5. *The Experience of The World / Objects changes.*

Diving the battleship Iena, and confronted with the fact that it is covered in coral, moss and barnacles, he observes 'The ship's fittings *lost their meaning*' (1953, 50, my italics). Diving canyons, he talks of the loss of a sense of scale and calls them 'unbelievable' (see Fig 6).

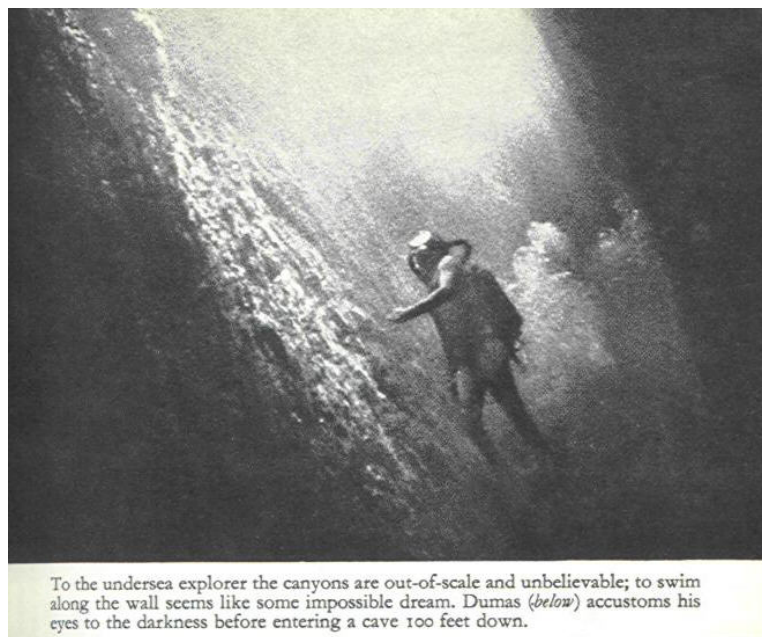


Fig 6

This image embodies for me the sheer speechless awe of diving. Schivelbusch, in his account of the first experience of the Crystal Palace in 1851, talks of ‘perceptual shock’ (1986, 46) - the feeling of disorientation of perceptual faculties used to contrasts, rendering a clear perception of form and scale almost impossible to the ordinary human being of the time. This is less a physical experience of something shocking, more a ‘perceptual’ affront to one’s knowledge and parameters. This is very much the way I felt on first seeing the Thistlegorm (see introduction). I believe Cousteau is describing something very similar to ‘perceptual shock’ here, and that the notion of ‘loss of meaning’ seems very well observed. Interestingly, all of the descriptions of this experience are about what they are not, as opposed to what they are (loss of meaning, unbelievable). In separate scenes, ironically, he is constrained to express himself in terms of the man-made. In the early dives, he describes the revelation of colour as ‘Platinum bubbles and dancing prisms’. (1953, 129). An explosion of light on a reef brings with it ‘a dazzling harlequinade of colour, dominated by sensational reds and oranges, as opulent as a Matisse’. (1953, 214)

## A Neurology of Diving?

*‘Organically embedded in nature as it was, that (old) technology in its mimetic relationship to the space traversed, permitted the traveller to perceive that space as a living entity’.*

Wolfgang Schivelbusch: *The Railway Journey* (1986, 35).

*‘Marked by affection and tenderness, human vision is necessarily refracted by preconceptions; and such a lens prevents the beholder from seeing the traces of time in the face of a loved one... Memory thus prevents truth from coming forward.*

Sara Danuis: *The Senses of Modernism* (2002, 15)

To summarise the above section, diving brings with it a changed spatiality, dramatic diminution of smell, taste and touch, in favour of a dramatic *excess* of auditory and visual stimuli, and an increased sense of the present. Further, movement is not just mimetic of the space traversed, actually the space traversed more often than not determines the movement. Schivelbusch terms the lost experience ‘the intensive experience of the sensuous world’ (1986, 17) and demonstrates that attention has to change to accommodate the experience of travelling in the railway carriage. Oliver Sacks (1985) speaks of neurological conditions both in terms of deficits and excesses. Using case studies of people whose brains have been damaged or altered in some way, he shows them striving to preserve identity and to reconstruct the ‘real’. Further, he demonstrates that the human mind, deprived of certain senses, will compensate by using others<sup>3</sup>. Schivelbusch makes a similar point when he says that space, and therefore our experience of space, was *both diminished and expanded* by train travel. (1977, 35). Though greater distances were travelled, it was at the expense of alienation<sup>4</sup> from the physical reality of the space traversed. What if the sense-impression, the ‘moving-about-in-space’ of diving is both a function of deficit and excess, and causes a (n albeit temporary) reshaping of our neurological topography? If phenomenology<sup>5</sup> (5) suggests that we exist only in relation to objects in the material world, then is the circuit connected differently underwater?

The train, like the film or the modern city, corresponds to profound changes in visual perception. Attention, according to Crary, became a central problem of modernity because of the saturation of sensory input in the modern industrial city caused attentiveness to be continually deflected and misaligned. He goes on to paint Nietzsche's 'modern nihilism' as 'an exhaustion of meaning, a deterioration of signs' (1995, 64). The notion that the human sensorium has become alienated from the natural world, that signs are exhausted, seems to be confirmed by the fact that Cousteau no longer has a vocabulary with which to express it, other than that of the manmade.

So, what kind of attentiveness is at play here? Cousteau, stood in awe at the bottom of a canyon, experiencing a vivid sense of the present not unlike Bergson's 'durée' – 'a continuity of flowing, a becoming' (1944, 335) - has had his already alienated sensorium re- (or dis-) orientated. Even if this is only temporary, a mode, it seems like a partial reversal of the process elaborated by Schivelbusch, that of the realignment of the perceptual apparatus caused by modern living. It is a kind of reverse 'perceptual shock': ironically in the face of what has been lost. Cousteau's sensorium, through the mask and mediated by technology, confronts the very thing from which it has become alienated - the natural world - in a way that seems more profound than merely standing in front of a range of mountains, for example. Cousteau is 'organically embedded' in a way not possible on the surface – every single part of his body is in contact with the 'living entity' of the natural world.

To refract this idea in a slightly different way, Sara Danius, in her discussions of Proust, suggests that the modern age is characterised by sensory dissociation. She talks of Proust's distinction between human vision and the cold, mechanical eye of the camera. Human beings are used to 'colouring' their sight with a series of other stimuli including the cumulative experience of an individual, their body language in the moment, the sound of their voice etc. If this is the case, then the diving 'moment' – as per the day Cousteau's 'eyes were opened to the sea' is a very rare thing indeed. It is a moment where a sensorium used to sensory dissociation is further dissociated by refraction, panoramic sound and sensory reorganisation. With the diver suspended in water, looking through the mask - a visual framing device - in a manner analogous to film, his gaze is inevitably cold and mechanical. It is therefore a moment where an entirely new world which cannot (by definition) be coloured by experience, is revealed, mediated by technology. No wonder he is elated.

## **Conclusion**

I asked (above) if diving could be thought of as a new way of looking. I think there are two answers to this. Firstly, in terms of the 'way of seeing' of the Engineer, it is clear that (as per Berger, 1972, 46) his gaze is loaded with the same assumptions as those of the surface world – those of a generalised technological imaginaire. Secondly, and in direct contrast, in terms of the subjective experience of the diver, 'looking' (or 'seeing') appears to be the wrong word. This forms only part of a more substantive re-connection with the world, mediated by technology, with its own peculiar topography of the senses. Freed from the utility of the helmet-diver, his consciousness is able to look within for the first time. What he finds there I will return to in Chapter 3.

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## Notes

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<sup>1</sup> I use ‘Modernity’ to describe the continuous process of modernisation which characterises the 20<sup>th</sup> Century, elaborated by Berman as ‘a mode of vital experience.. an environment that promises adventure, power, joy, growth, transformation of ourselves and the world – and, at the same time, that promises to destroy everything we have, everything we know, everything we are. (1982, 15)

<sup>2</sup> In this discussion I use the Lacanian psychoanalytical notion of the Imaginaire, which is inaugurated by the ‘mirror stage’ of the development of young children, and occurs when they become aware of the alienated ego that is their own reflection. The idea is further developed though application in the technological realm by e.g. Lister et al (2003, 60) that is to say the projection onto technology of human intuitions of, and desires for, fulfilment.

<sup>3</sup> Sacks’ contention is that while the medical world quickly worked out words for a lack of something, designated by the prefix ‘a-’ e.g. Aphasia, Amnesia, Agnosia etc, it does not have words for excesses,

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because it has no concept of excess. Sacks seeks words such as extravagance, too-muchness to describe illnesses which can present as an excess of wellness.

<sup>4</sup> For Marx, alienation was rooted in the material world and was a direct result of a fundamental change in the relations between men, instruments of production and the materials of production. I use the notion here both in this and the broader sense explored by Adorno & Horkheimer, namely the estrangement from the natural world.

<sup>5</sup> Phenomenology is a philosophy developed by Edmund Husserl at the turn of the century. Husserl's philosophical method employed a mental suspension of objects to enable him to take a natural standpoint of pure consciousness. By doing this he discovered that all consciousness was tied to objects, whether real or not. The notion is explored extensively in Sartre's 'La Nausée' (Nausea).