

# A Speculative Paper On Xenomorph Biology

An Examination Of The Recent Alien Species Encounters  
 Professor Yuri Sakomoto

## 1.0 Introduction :

In producing this first report from Exobiology division, I hope to clarify the current state of affairs within the department, and also to provide a detailed breakdown of the current research hypotheses and priorities. However I believe strongly that the main aim of this report is to stress firmly the need for further data and information upon which we can work. Co-operation has up till now been forthcoming and unreserved; however I believe critics of the large expenditure involved in the creation of this department are beginning to doubt whether any benefits will eventually be reaped. To assuage these fears, and also to beg for continued finance I am producing this report. The information contained should prove insightful into both our current work and the general aims of this division.

### 1.1 : The Aims Of ExoBiol Section :

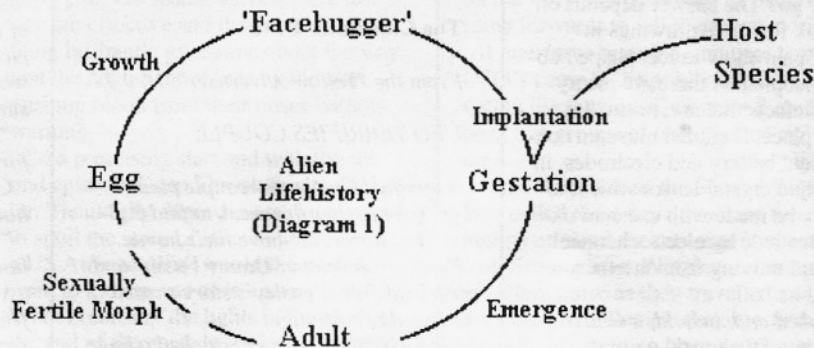
Exobiology as it currently stands can only provide information on a consultation basis. Without a steady influx of fresh specimens we are left with only second, even third hand reports of species biology and behaviour. The reliability of this evidence is hardly satisfactory; to attempt to research a species, when none of the attending scientists have even seen a specimen is almost ludicrous. However the research has received substantial backing from within the Company, not least from Bioweapons; the first encounters with extraterrestrial life is naturally of high value to the defence agencies.

As head of the Section I am left with the unenviable task of assigning research priorities within an information vacuum: the Biogen labs have no material to work with, and Ecology & Behaviour must create feasible ecoprofiles based on hearsay. I have re-iterated at many meetings, that a live specimen is essential for constructive research to take place; our first aim should be to secure such specimens. Anything else is simply blue-sky philosophising. The information garnered and processed is contained within this report, and as you can see it amounts to very little. Even so, a few promising lines of inquiry present themselves to the careful observer. This unfortunately only highlights the lack of new information. For a scientist to be presented with this kind of enigmatic creature, and then be held at arms length is almost torture.

It is worthy before progressing any farther, to outline our current methods of enquiry. As the first ExoBiol section in existence that can at least hope to be provided with a specimen, we find ourselves well prepared. The extensive funding that we have received has so far been well spent, no possibly useful piece of equipment has been denied to us; only time will tell if the return is anywhere near as high. Personally I believe strongly that any information gained as a result of research into this in-

credible first contact, will be nothing less than earth-shattering.

Our main source of information on Biology has been from the report filed by the Synthetic science officer during the first species encounter. The isolated nature of the interactions between the alien and the crew members provides some fruitful hypotheses. Very little has been added later to this information, though some important data has been rescued from the neural networks salvaged from within the 'Bishop' Synthetic. Other than these sparse files, we have been able to piece together a brief profile of possible behaviour patterns by comparison between recorded patterns and that of earth-native species. This is our basic tenet : from whatever planet, all living species



must solve similar problems; therefore comparisons are possible between species, even from different worlds. Even on our own planet, Nature has solved the problems of life in remarkably similar ways between even the most unrelated species. Competition and evolution must be forces intrinsic to living systems throughout the universe. One word of caution at this early stage must make clear that if this tenet is found to be untrue, then we have little hope of understanding even the simplest behaviours of any alien species.

### 1.2 Encounter Logs and Information Sources :

*Encounter Alpha : Nostromo ;*  
*Encounter Beta : Acheron (LV426)*  
*Encounter Gamma : Prison Colony;*  
*(Fiorana 161)*

The events surrounding the three encounters have been well documented elsewhere but some points must be made.

At best the information obtained has been fragmented and is very often extrapolated from uncertain premises but, as with a crime scene, each encounter has left some traces which allow for the creation of a profile of this species.

We have three main sources of information: the synthetic Ash who's observations on the

creature were encrypted into the flight logs of the Narcissus escape vessel.

Bishop, a second synthetic used during encounter Beta, provided us with some vital data on the "Queen" morph as well making more general information which often added to the observations made by Ash. Bishop was recovered after encounter Gamma in a severely damaged state, although most of the damage was confined to the lower and mid body we must face the possibility that some data has been lost to us forever.

Officer Ripley proved to be one of the most promising sources of information and her suicide during encounter Gamma must be regarded as extremely unfortunate. Her testimony at the company enquiry into the loss of the Nostromo and the computer simulations which she helped create ( for use by the colonial marines who took part in encounter Beta)

have proved invaluable, even taking into account distortions due to stress and personal bias.

We have also attempted to make use of the experiences of the survivors of encounter gamma. However assimilating into the database, the reports of several dozen deranged psychopaths has been difficult and for the most part unfruitful, despite the use of advanced invasive memory techniques and neural deconstruction.

### Biological Information :

With the lack of much in the way of detailed analysis of specimens, the biological information is reliant on the preliminary dissections carried out by both Simulants, and extrapolations based on those findings in relation to the biology of known species. Stress must be placed on the highly speculative nature of these findings.

The Alien species appears to have evolved a life-history that operates within very distinct stages, in some ways this is akin to the series of growth and pupation seen in many insect species, an obvious example is that of the larval caterpillar and the reproductive adult butterfly. Yet this simple life-cycle has been subsumed into a larger scale social system which

has obvious parallels within the social insects such as ants, bees and termites. Before discussing the implications of this mode of life. I shall first set out the information available on each stage in the life cycle.

When first encountered, this first phase in the life-cycle was considered to be the full adult form by the Nostromo crew. In reality the 'Facehugger', as it has been colloquially termed, is simply the first stage in the later development of the full adult alien; the highly mobile morph has evolved specifically as a means of dispersal for alien embryos. Here we see our first divergence from Earth biology. Usually a female lays an egg which contains a developing embryo, in this case it appears that the embryo is either contained within the Facehugger form or more likely, that the Facehugger produces the alien embryo.

The adaptive features of the morph are many. It has several pairs of highly jointed legs which provide a wide degree of movement and the possibility of very quick motion and swift leaps: important for chasing down suitable hosts. The morph bears an extended prehensile tail which appears to have the sole function of anchoring the Facehugger to its host during implantation, but it almost certainly plays a role in balance during movement. The complicated motion associated with so many pairs of legs will make balance an important consideration. The preliminary dissections show that the Facehugger has a whole series of internal organs, none of which have been identified though they are doubtless associated with producing and maintaining the embryo, synthesis of the molecular acids present in the internal fluids along with more mundane processes such as gas exchange. One important point the Facehugger must be of necessity be short-lived: it appears to have no mouth parts for feeding. Internal stores must provide all its energy.

Three layers make up the skin, the outer is comprised of a complex of proteins and polysaccharides, underneath this circulates a layer of highly acidic fluids and a third layer which contains an unusual series of proteinaceous molecules bonded to silicates (see diagram 2). From a biochemical perspective alone, the potentials available in the isolation of any of the components in these skin layers could have undreamed of applications. So far no know proteins complex with Silicon; some proteins are able to complex with metal ions, such as the Iron in Hemoglobin, but this is of an entirely different scale. Silicon is a highly abundant element yet is chemically unreactive and thus unsuitable for biochemical processes, nevertheless here we find it complexed with proteins in a living system. Refining of Silicon requires high pressures and temperatures, if the alien species can isolate Silicon atoms using a biochemical reaction then the applications are obvious. Silicon has uses in everything from glass, asbestos and semi-conductors. The unreactive nature of the Silicon complexed proteins are necessary to contain the highly reactive acids and enzymes present in the body fluids of the species, it is likely that the adult has a similar layer. The acids are again unknown to modern biology, their fierce reactivity is dangerous to life, their presence here perhaps allowed by complexing with other components of the fluids reducing their reactivities until released into the air. The fluids themselves are under high pressure, and this is likely to be another adaptation, though this time one of defence. Any small abrasion to the outer layer results in the rapid ejection of fluids through the cut, thereby spraying an attacker with corrosive acids. Another possibility is that the fluids form part of the hydraulic

system that the species appears to use for movement. The two hypotheses are not mutually exclusive however, and both may in fact be correct; many animals show adaptations which have come to serve a number of purposes after their first evolution.

It is unclear what host species are most suited to implantation of the alien embryos. To date, both humans and canines have been used as successful hosts, though the possibility is there, that any species which uses an atmosphere (i.e. has an orifice for gas exchange) is potentially useful as a host. All the embryo seems to require is a suitable body cavity in which to gestate. Though there is surely some parasitism involved whereby the embryo feeds off chemicals from within the host system. It is likely that should a hugger attempt implantation on an unsuitable host it will remove itself and recommence searching. One question deserving of an answer is, how does the Facehugger 'know' which gases to feed to a prey during implantation? Crew member Kane who first succumbed to implantation, was kept alive by the attached Facehugger even during his return to the Nostromo through a hostile atmosphere.

However the question is easily dealt with, no prior knowledge of host biochemistry is needed: the Facehugger simply supplies the host with ambient air, a mixture obviously able to sustain the host. In the case of Kane, some oxygen was supplied by his suit reserves and absorbed by the Facehugger, it is likely that simple bladders will be found within the Facehugger body cavities, connected to both the ambient air and the proboscis used in implantation. Kane also displayed a lowered metabolic rate, recorded in the flight recorder's autodec files. Again this is likely to be simply the consequence of a lowered oxygen intake and a reaction to shock.

A last consideration must concern how the morph identifies its prey. As a dispersal mechanism the Facehugger must be able to discriminate between suitable and non-suitable hosts. However no documentation has yet revealed any obvious sense organs which would allow such selection. This is a topic which we shall return to later, though it can be stated here

that motion sensors of some form are the most probable method of host identification.

#### Adult Morph: 'Warriors' and 'Queens'.

After implantation, the embryo develops extremely rapidly, its growth accommodated by some re-arrangement of the host internal organs. Despite an alien biology, it is not inconceivable that the embryo could utilise biochemicals from the human system. Selective release of acids, bases, and other similar catalytic chemicals into the hosts system will result in a 'soup' of simple chemicals which can be drawn upon for embryonic development.

Emergence is sudden and final, and is almost certainly designed to kill the host. It is possible that the corpse is utilised as a food item should situations permit. The newly emerged adult is mobile and alert. Vulnerability at this early stage is a factor to be considered. The final adult coat of siliceous protein elements will require some time to develop and harden. Arthropods (such as crabs) on earth follow a similar period of vulnerability whilst moulting: a common behaviour is to remain within a bolt-hole until the carapace is fully developed.

Maturation into the full adult form is also rapid; a distinctive feature of the alien is this rapid metabolic rate, it is almost certainly accompanied by a warm blooded system. It is un-

clear whether moulting is a continuous feature of development, or whether the final, fully hardened carapace is not secreted until growth has ceased. One factor which is deserving of attention is the possible range of body sizes within the species. As already mentioned, the morph active during Encounter Gamma showed different characteristics to the previously encountered specimens. This may have simply been due to a wide range in body sizes, or possibly an example of an entirely new caste within the alien social system. If so then there is as yet no evidence to suggest its role within the alien society; no unique behaviours have been recorded, though it is likely that the stressful situation may have precluded any behaviours other than 'fight or flight'. Certain species of ants also show a wide range in body size, generally as a result of the quality of food available to the larval animal. The dog-host for the Gamma specimen may have been unsuitable compared to human substrates used in the Alpha and Beta encounters. To get an idea of the vast possibilities in the array of body sizes, I quote some figures for Earth species: drone workers can differ by as much as 100-1000 times in body size and weight as compared to fertile adults and warriors. Queens may reach even bigger body sizes.

The full adult alien has a strikingly different morphology to the dispersal phase. Apart from the obvious differences in body size, there are elaborations on the basic body plan which are clearly a response to different evolutionary pressures on the adult and Facehugger morphs; many insects also show different adaptations between larval animals and adults, this is due to the different stages being essentially entirely different creatures in terms of their ecological requirements and behaviours. Some thought must be given to adaptations shown only in the adult form.

The adult has fewer limbs and posture is also altered to allow a partly upright stance, though the primary means of movement appears to be a variation on the four-legged gait allowing speed and versatility in movement, especially alongside the extra stability gained with the much enlarged tail: part of the fabled grace of cats is derived from their spinal mechanics and the use of the tail as a counter-balance in jumps and mid-air turns. The adult is clearly designed for aggressive and fast movement, features shown in all predatory animals; a predators success relies on exploitation of prey, should a prey species evolve a means to counter predation the predator is thus also forced to evolve or die. The alien is almost certainly a highly successful predator and unrivalled by any animal here on Earth. A second adaptation seen in predators and displayed in the alien, is the evolution of enlarged mouthparts. The evolutionary solution seen in the alien however is unique, on Earth development of canines and front teeth along with enlarged facial muscles are commonplace. In the alien we see the puzzling feature of having two systems of jaws: an outer, typically predatory set, and an inner set of teeth which are attached to a hydraulic 'piston' allowing a second bite to occur after the first. This second set seems almost redundant considering the massive canines and incisors, in a later section I consider this adaptation in relation to possible prey on the aliens home planet. Adults appear to have a large amount of elaboration which is missing from the purely functional design of the dispersal morph. The skull shows a large elongation, forming a smooth, rounded dome; the 'spine' of the adult also bears long dorsal spines similar in nature to some species of dinosaur, yet their function is likely to be highly different. On earth such



seemingly useless features would be categorised as the results of sexual selection (the selection for particular traits, initially beneficial, in a reproductive partner which leads to the evolution of often detrimental elaborations such as the peacock's tail, or the antlers of a stag).

However no such system of selection occurs within the social insects, which share the most numbers of features with the alien species. It would therefore be wrong to suggest that this is the correct explanation, the elaboration may be simply related to other adaptations. For example the enlarged head may allow for attachment of larger facial musculature and long elastic ligaments, thereby increasing bite pressure. Dorsal spines may be of similar value in attaching musculature along the spine, benefiting movement and agility. Certainly in predators such as the Tiger, the skull shows a gradual widening as one advances along the evolutionary tree, a wider skull allows for better dental musculature; the alien may thus have a similar adaptation except in a different plane: length rather than width. One further hypothesis makes a possible link between the enlarged head and adult sense organs (see below).

Other developments on the dispersal morph see the ability of the adult to shed limbs without difficulty and also regenerate replacements. Again this has concordance among the arthropods here on Earth, they too are able to regenerate lost limbs without difficulty and any signs of stress. Shedding of body parts can also evolve as an escape reflex, allowing prey to escape predators, the obvious example is a lizard and its tail. Such autotomy may have evolved in the alien species, suggesting that they suffer predation themselves in their home ecology. Further aspects of this are discussed in the appropriate section.

The adult alien also may rely less on the hydraulic system of motion which is prominent in the Facehugger. Terrestrial motion involves a large amount of conflicting forces, the ideal solution to which is the hollow cylinder found in all Arthropod legs. Other features are flexible joints, resilient tendons and highly elastic energy conserving devices (ligaments). This is the system seen in lobsters, crabs, etc. and the hypothetical mode of locomotion in the Facehugger. However the adult has an apparently different, or at least more elaborate system which is a compromise between a hydraulic system and the skeleto-muscular system found in mammals and other vertebrates. In other words they have achieved the best of both methods,

and this will surely involve entirely novel methods of joint articulation and muscle attachment.

Hydraulic systems are common on earth, especially within the Arthropods. I refer specifically here to the Phylum Chelicerata, a taxon which is 98% comprised of spider species, a large amount of convergent evolution is obvious between the chelicerates and the

aliens; hopefully this is support for our basic tenet concerning the universal problems of life. A sample body plan for the chelicerates is reproduced below, the comparisons with the Facehugger morph will be strikingly obvious. Other comparisons are also evident. The Arachnids have also evolved complex prey capture behaviours, the most common being web-spinning; poison glands are also common within spider species. The aliens have demonstrated the ability to excrete substances (means yet unknown), and also the presence of a poisoned tail-spike which appears to be able to subdue prey and prepare them for implantation. This particular adaptation is intriguing as it suggests that the aliens may have

evolved to cope with physiologies similar to the mammalian system, or simply that they produce a chemical which produces coma like symptoms in the human. The possibility of a 'universal anaesthetic' is intriguing but unlikely in reality.

Among the most important pieces of information which we are lacking about the aliens, is the nature of their sensory organs. The descriptions leave out any details of eyes, nostrils etc. However it is almost safe to assume that they are sensitive to some extent to the electromagnetic spectrum, from their behaviour during all three encounters. The precise frequencies that they respond to is unknown. For a species which displays some affinity with underground life then infra-red is almost a certainty. Other organs may respond to movement, as within the Facehugger, but an intriguing hypothesis proposes that the elongated head which is a feature of the adult morph, is designed as a receiver for echolocation. Species as diverse as the bat and the dolphin use echo-location to build up a 'picture' of their surroundings: the aliens may do something similar. Features common to echolocation organs are an antenna, generally the skull (in this case an elongated smooth dome, similar to the dolphin head) and a means of producing high frequency 'clicks'. The dome itself may house resonance chambers which could easily produce such sounds. Again the adaptation is perhaps not surprising if viewed in the light of a creature which moves through darkened environments (tunnels, etc.). The aliens may also be sensitive to olfactory signals (smells) in the form of pheromones. These signals can act as a unifying influence within ant and termite colonies, and also as more complex signals which can relate a wide band of information such as kinship, danger, etc. Many subterranean animals possess keen senses of smell.

The presence of a Queen in the hive established on LV426, may reflect some aspect of pheromone signals as it is unclear whether a Queen would hatch only from 'queen' eggs, or that the development of embryos and Facehuggers is affected by pheromone signals from other adults, causing a Queen to develop. It is easy to conceive of a chemical signal produced naturally by all adults which, when reaching a certain concentration triggers the growth of a Queen morph. Such a signal would then be suppressed by pheromones produced by the Queen herself, resulting in only a single Queen per hive. Such a process has parallels amongst the bees; larvae can develop into drones or workers dependent entirely on the foods provided by drones, a queen is therefore only produced when needed. The Queen morph is both the most fascinating and also the most enigmatic caste in the alien society. We have been able to salvage only the most basic of descriptions from the Bishop Synthetic, these suggest that the Queen is much more massive than the 'warrior' morphs, and displays distinctly different head ornamentation. This is perhaps subtle evidence to support the hypothesis concerning sexual selection. It is also unclear whether the Queen is usually mobile or that extreme stress caused her to move from the centre of the hive during the end of encounter Beta. Usually within the social insects the Queen is in an almost dormant state, producing eggs on a continual basis. The present of an egg laying morph begs the question: are there 'male' aliens, or is the species asexual. However there are no asexual species on earth which have evolved to any significant degree. Even the insects such as bees and ants combine sexual reproduction with asexual (to produce drones). Research

also suggests that the sexual system is also more adaptable and is thus quicker to respond to evolutionary pressures. The many adaptations which the aliens display suggests that they are able to wield such adaptability, though of course if their evolutionary existence has been considerable, then significant changes could have occurred over a much more protracted period. Man himself evolved later than the insects, yet evolved at a considerably accelerated rate, partly as a result of the development of social systems and intelligence. This brings us to the question of the intelligence and social structures typical of the alien species.

None of the encounters have produced any convincing information relating to the intelligence of the aliens. Behaviours such as co-ordinated movements of warriors, nest building, and defence of the nest are simple behaviours which can be found in many insects as 'programmed' i.e. inherited behaviours. Ants themselves have a wide range of innate behaviours which seem at time to almost border onto intelligence, yet they display very little ability to learn. Indeed much of this is simply altering of innate behaviours to slightly different purposes. Much of the success of the social insects is in their high degree of co-ordinated efforts rather than intelligence. Generally this co-ordination is centred on the queen of the colony and is transmitted by a complex array of pheromone signals. We must not yet rule out the ability of the aliens to display some high order intelligence, though the degree is still likely to be small. Individually they are perhaps comparable to the average dog. As a co-ordinated group they have greater potential but programmed behaviours will perhaps limit more than aid their efforts. It is thus likely that once captured, individuals would be able to be trained to perform some simple tasks; communication is certainly no more possible than between an owner and his pet.

The evolution of the social system within the aliens may have occurred extremely early in their history, leading to later behavioural adaptations which work with and around their biological requirements. For example, the adults appear to collect hosts for cocooning within secreted material, close to eggs due to hatch. This behaviour is akin to the nurse-maiding behaviour seen in ant species; particular ants may spend much of their time guarding and tending eggs and larvae. Placing hosts near to eggs and therefore Facehugger is an adaptation aimed at increasing the chance that a particular Facehugger will successfully implant its embryo into a suitable host. Thus we see that the Facehugger is no longer required (within certain limits) to seek out hosts alone. The lack of obvious sense organs on the Facehugger morph may mean that these have largely atrophied, as with eye-sight in the mole, simply because they are no longer 'needed'; suitable hosts are always available. This in turn means that the adult must instead be the prime collector of host specimens. Their sensory acuity is likely to be much greater as a consequence. Interestingly this supports, in a roundabout fashion, the echolocation theory: as with ultrasound scans in modern medicine, an echolocating alien would be able to identify body cavities within a host suitable for implantation by a Facehugger. Other behaviours also follow this pattern. Production of bodily secretions is common, yet these appear to be laid down in some overall design, this could conceivably be designed as a background for camouflage of adults waiting to capture hosts. Many animals prefer to re-

main on vegetation, or near shade etc. which benefits their natural camouflage.

### The Alien Homeworld & Ecological Backgrounds:

Analysing some of the preliminary conclusions we have drawn concerning the alien's biology, we may be able to predict the sorts of ecology likely to produce such a creature, and thereby gain a glimpse of its home planet.

As we have seen again and again, the alien is an highly adapted predator designed for quick capture of prey using cooperative hunting and possibility surprise attacks from camouflage. Many features of the alien are ambiguous and may relate simply to its biology or perhaps solutions to environmental pressures found in its home ecology. For example, the tough siliceous coat may be a result of its acidic metabolism, or protection against a harsh environment. A highly acidic atmosphere, perhaps with limited visibility may be the preferred environment for the aliens. Its performance outside its own ecology mirrors that of other species transferred to areas where natural predation and other factors are removed. Examples are numerous from Earth, the most familiar may be the explosion of rabbit populations in Australia. A non-native species the rabbit with its rapid reproductive rate grew to pest proportions in the latter part of the 20th Century. Such pests are near impossible to regulate effectively. The natural prey of the alien would appear to be a fast moving creature, perhaps aggressive in its turn requiring the need for regeneration and ferocity in the encountered species. The prey themselves may be a group living species, again this would necessitate aggression and co-operation amongst the aliens. Consider a wolf pack hunting a herd of buffalo or bison. Once cornered even a cow will turn to fight. If the home planet has a severe climate then all species would require protection from its atmosphere; therefore the prey species will also have a protective coat. This may explain the curious double-jawed mouthparts noticed in the adult alien, the first bite may secure a hold onto its prey, the second explosive pistoning of the inner jaws may penetrate a thick coat to reach the vital internal organs. The second set would only be redundant, therefore when considering attacker upon soft bodied creatures such as mammals. Competition on the home planet may also be fierce requiring vigorous defence of the hive against intruders and other predators. It is almost impossible to imagine a species tough enough to successfully prey upon the alien thus far encountered. However the possibility must be considered. Another hypothesis which draws upon the strong similarity between the aliens and the ant species on Earth, is that the alien species may be just one amongst many closely related types. Here on Earth different ant species follow different life patterns. Some species utilise mainly vegetation as food sources, others are more carnivorous. Of the most intriguing are those species which 'raid' other colonies and steal food and eggs for use in their own hives. Such raider ants can be considered to be the only species other than man that indulges in the art of war. The requirements for hosts for embryonic development, may reflect a life which revolves around this species preying upon others on its home planet. It is easy to conjecture yet the facts are sparse.

I have been asked to comment on the other alien species encountered on LV426 and their possible relationships between the two. All we can truly say about the other species is that they have developed space travel and obvi-

ously a high order of intelligence. The 'beacon' left as 'warning' on LV426 appeared on ECIU analysis to be warning others away because of their overrun by the more dangerous species which was later encountered by the Nostromo crew. However it is still unclear whether the eggs found within the ship were discovered on LV426 or were transported there by the other alien explorers. It has been proposed that the alien species which is the focus of this article is actually a form of 'biomachine' engineered by the more advanced species, and is actually somewhere between a domesticated animal and a biological factory. The brief description that we have of the ship describes it as looking "almost grown" rather than built. Obviously this reflects the presence of enormous amounts of alien secretions. But this may have been carried out by the aliens during their construction of the hive within the ship, or perhaps purposefully encouraged by the advanced species. The theory being that the secretion is some sort of 'biological shield' absorbing radiation, protection the ship from meteorites etc. Other ideas that have been proposed are that the derelict ship was some form of 'trap' to draw in hosts for the aliens, their mimicry apparently being of such a high order as construction of a space-ship! One more tenable theory is that the advanced beings who constructed the ship were perhaps other castes from within the alien social system, if this is the case then the complexity of the system would be amazingly complex. However these theories can never be proved or even substantiated, barring further encounters. They are therefore of little use in a scientific discussion of the evidence. Nevertheless I must report that one more tantalising piece of information. The atmosphere of LV426 shows some highly unusual concentrations of gases. It has been proposed that the derelict ship was actually a colony ship and that terra-forming had begun on LV426. The components of the atmosphere had begun to alter when the aliens were overrun by their own workers, the colony destroyed in the process leaving only the derelict ship.

### Conclusions

We have analysed a wide array of information concerning the alien species, much of which of a highly circumstantial nature. The many parallels that can be drawn with Earth species particularly amongst the insects, suggests that our basic working hypotheses are correct: it is possible to extrapolate from known creatures to aliens in regard to their evolutionary solutions towards competition, predation, reproductive biology, locomotion, etc. Such a finding suggests that our efforts have not been in vain, and that given suitable time and specimens, we should be able to unravel the many mysteries which surround this species. We have also shown that the alien is a highly adapted predator and certainly more dangerous than anything likely to be encountered on Earth, yet such an advanced predator is simply a product of its ecological background. It is therefore impossible to suggest its role within its home ecology, whether it forms the dominant species, or perhaps some minor component of a more diverse network is unclear; the question is likely to remain so without analysis of the home planet itself.

Hopefully I have produced an informative report that accurately reflects the current state of research within the division, work as always is continuing; progress is most likely in those ar-

reas where we are developing possible computer models of alien population dynamics, reproductive potential and locomotion. Some suggested guidelines have been drawn up as requested, to provide the basis of any further interactions with this alien species. In a wider context I see that the aims of Exobiology Section have been vindicated and that we can consider ourselves worthy of continued existence in the future: with two known alien species, the existence of others is no longer uncertain, it should be considered fact.

### Appendix

#### Suggested Guidelines For Further Alien Encounter Situations

With the mismanagement of the first three encounters, it seems vital to suggest some guidelines concerning possible further encounters. The following points are recommended for consideration as points of policy and as methods for dealing with alien encounters:

1: All Synthetic Science Officers should be programmed with the full database compiled by Exobiology Division. Further hypotheses and information should be assimilated by each unit at regular intervals. The bad planning involved in the Nostromo encounter should not be repeated.

2: A Colonial Marine Corps unit should be trained solely as alien encounter squad. With access to all available information and specific equipment, such as body armour capable of resisting strong acids, it would probably prove to be a cost effective method of dealing with any future alien encounter. As opposed to the squandering of men and equipment which took place on LV426.

3: Data from the Bishop Synthetic suggests that the aliens largely ignored him and allowed him to move freely on the outside of the colony. This may reflect the unsuitable nature of Synthetics as host for the species. If it is possible to allow Synthetics to freely move amongst adult aliens without hindrance then value for behavioural observations is obvious.

4: Designs are being drawn up for a device which could be fitted to certain Synthetics. It would be constructed to contain and preserve alien embryos for later return to the Exobiology Laboratory, the device would be fitted at the back of the throat and would be of value if the Synthetic could induce a Facehugger to attempt implantation.

5: Fit ECIU processors to all boundary system craft. Quick translation and relaying of information back to Earth would allow for the deployment of specialist squads, see point 2. This would avoid repeats of encounter alpha where untrained staff are put into a difficult first contact situation.

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